

2015

Indiana Nonpoint Source Program Annual Report

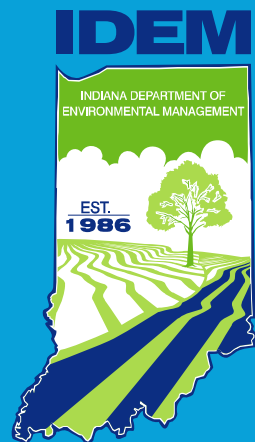


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Introduction to the NPS Management Program

Nonpoint source (NPS) water pollution is so named because the pollutants do not originate at single point sources, such as industrial or municipal wastewater discharge pipes, but come from many diverse sources in the environment. When it rains or snow melts, water runs off streets, parking lots, lawns, and agricultural fields and carries with it pollutants such as motor oil, sediment, fertilizer, bacteria and pesticides. These pollutants are then carried, untreated, to the nearest stream or lake through surface water runoff or storm sewers; or they infiltrate into groundwater. Sediment, nutrients, and bacteria are the leading pollutants of concern. Nonpoint source pollution remains the largest source of water quality problems in Indiana. Information from the [2014 Indiana Integrated Water Monitoring and Assessment Report](#) shows that NPS pollution is a significant source of impairment in Indiana waterbodies. While some NPS pollution is naturally occurring, most of it is a result of human activities.

The federal Clean Water Act (CWA) was amended in 1987 to establish the Section 319 NPS Management Program to control nonpoint sources of water pollution. Section 319(h) provides U.S. EPA (EPA) with the authority to grant federal dollars to states to mitigate and prevent NPS pollution in accordance with the state's approved NPS Management Program. In Indiana, the [Indiana State Nonpoint Source Management Plan](#) (State NPS Management Plan) guides the usage of CWA §319 funds, which are administered by the Indiana Department of Environmental Management (IDEM), Office of Water Quality (OWQ), Watershed Assessment and Planning Branch.

Environmental problems, such as NPS pollution, often cut across media and political jurisdictions. Consequently, environmental mitigation and protection require a comprehensive and collaborative approach that works with a multitude of programs, agencies, and concerned citizens. A watershed approach provides a framework for coordinating and integrating these programs and resources. This approach directs the focus on water quality in a geographic area delineated by a watershed. A watershed is an area of land that drains to a particular waterway, such as a stream, lake, river, or wetland. Watersheds are delineated by the U.S. Geological Survey (USGS) using a national standard hierarchical system based on surface hydrologic features, and are classified into hydrologic units identified by a unique Hydrologic Unit Code (HUC). The HUC consists of two to twelve digits based on the level of classification (the longer the HUC code the smaller the watershed level). Indiana has thirty-eight 8-digit HUC watersheds (Figure 1). Each of these may be subdivided into smaller 10-digit and 12-digit HUC watersheds. By examining water quality issues on a watershed basis, problems can be observed in relationship to their sources so that the causes can be addressed in the most effective manner. The Watershed Approach is based on four basic principles:

1. Geographic focus based on hydrological rather than political boundaries
2. Water quality objectives based on scientific data
3. Coordinated priorities and integrated solutions
4. Diverse, well-integrated partnerships

IDEM's ongoing effort to implement the watershed approach includes:

- Ensuring that internal resources continue to be focused on addressing the most significant water quality issues facing Indiana by conducting a periodic review of OWQ activities and making any necessary adjustments;

- Improving internal coordination between water quality assessment and watershed planning and implementation programs to facilitate an integrated watershed management approach to restoring impaired waterways; and
- Improving coordination with local watershed groups, community groups, and other state and federal agencies to better leverage efforts in ways that will achieve greater improvements in water quality.

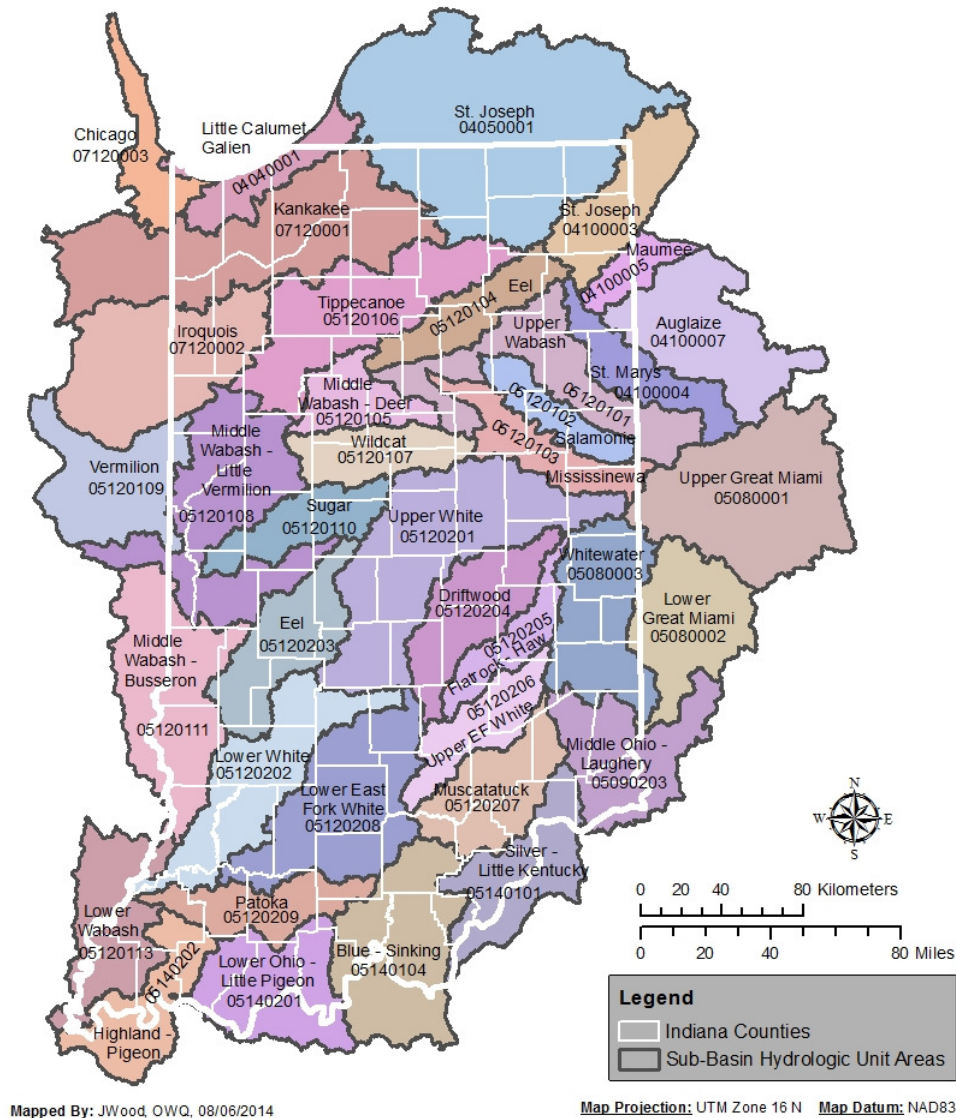


Figure 1 Indiana 8-digit HUC Watersheds

This 2015 *Nonpoint Source Program Annual Report* describes Indiana's progress towards meeting the goals, objectives, and milestones of the State NPS Management Plan, as well as the efforts and achievements of the many agencies, groups and individuals working at the state and local level to

address NPS pollution in Indiana. It also describes how the \$319 grant funds were utilized to help accomplish these goals.

Indiana's Nonpoint Source Management Plan

Section 319(b) of the CWA requires states to develop a NPS Management Program to control NPS pollution and guide the usage of CWA §319 funds. The NPS Management Program must be approved by EPA (and updated every 5 years) before §319 funds may be granted. EPA reiterated in its revised [Nonpoint Source Program and Grants Guidelines for States and Territories](#), issued in 2013, that updating NPS Management Programs helps states to identify strategic priorities, develop goals and milestones, work more effectively to address water quality problems, and engage partners to address statewide NPS priorities.

IDEM began updating the 2008 Indiana NPS Management Plan in August 2012. NPS Program staff met with other state and federal agencies to discuss aspects of the plan that coincided with their programs, and gathered public input on strengths, weaknesses, opportunities and threats to the program. The updated [Indiana State Nonpoint Source Management Plan](#) (2014 update) has been approved by EPA and is a vision and mission-driven strategy to address NPS pollution in Indiana. All goals, objectives, milestones, and measures of success are based upon the following two statements:

Program Vision:

The vision of Indiana's Nonpoint Source Program is to restore waters impaired by nonpoint source pollution and maintain water quality in healthy watersheds through locally led partnerships.

Mission:

To work with our partners to make measurable improvements in, and prevent degradation of, water quality by addressing nonpoint source pollution through education, planning, and implementation.

The State NPS Management Plan describes Indiana's strategies for reducing and preventing NPS pollution through program implementation. The Plan's five goals relate to utilizing partnerships to define and address NPS issues; monitoring the status of those issues; providing outreach and education to citizens of the state to raise awareness of NPS issues; remediating the causes and sources of NPS pollution; and protecting areas already meeting water quality standards and those areas threatened by NPS pollution. The following sections of this document describe how Indiana is working to meet these goals, and what has been achieved in FFY 2015.

Nonpoint Source Management Goals and Progress

GOAL 1: UTILIZE PARTNERSHIPS TO LEVERAGE RESOURCES AVAILABLE FOR NONPOINT SOURCE MANAGEMENT

Cooperation with state, federal, local, and private partners is critical to Indiana's NPS Program's success. Coordinating with these partners increases the funds, staff, physical resources, and political capital available to work on NPS issues. IDEM's NPS Program utilizes multiple partnerships to reach diverse stakeholder groups and further NPS management goals in Indiana. Some of these partners and their achievements this year are highlighted below. A full accounting of progress made this year toward the objectives of Goal 1 in the State NPS Management Plan can be found in Appendix A.

Indiana Conservation Partnership

IDEM is one of eight agencies and organizations comprising the Indiana Conservation Partnership (ICP). Along with the Indiana State Department of Agriculture (ISDA), United States Department of Agriculture- Natural Resources Conservation Service (USDA-NRCS), USDA-Farm Service Agency (FSA), Purdue University Extension, the Indiana Association of Soil and Water Conservation Districts (IASWCD), the State Soil Conservation Board, and the Indiana Department of Natural Resources (IDNR), IDEM works toward the conservation and/or protection of Indiana's soil and water resources. Several initiatives have a direct effect on NPS management in Indiana including the Conservation Cropping Systems Initiative (education on the use of a system of practices, including cover crops, nutrient and pest management, continuous no-till/strip-till, and precision farming, to promote soil health); the ICP Training and Certification Program, discussed under Goal 3; Indiana's Nutrient Reduction Strategy, discussed below; Indiana's Rapid Watershed Assessments; and a multitude of local watershed efforts. Many of these agencies also provide funding on a continuing or limited basis to address NPS pollution in Indiana, such as NRCS's Regional Conservation Partnership Program and ISDA's Clean Water Indiana (CWI) program.

The ICP has committed to report load reductions of sediment, nitrogen, and phosphorus achieved by the practices installed under the agencies' various funding authorities as a partnership. Agency technicians were trained by IDEM NPS staff to use the U.S. EPA Region V model to calculate load reductions. In May 2015, the ICP reported the following load reductions for the State of Indiana for calendar years 2013 and 2014¹:

Sediment – 2,658,398 tons/year
Nitrogen – 4,901,344 lbs. /year
Phosphorus – 2,607,847 lbs. /year

¹ Indiana State Department of Agriculture. 2015. Indiana Conservation Partnership: 2014 Conservation Accomplishments and Nutrient and Sediment Load Reductions Report. Indianapolis (IN): ISDA, Division of Soil Conservation. 2015 May 20.

The ICP is the entity preparing Indiana's State Nutrient Reduction Strategy (Strategy), with the ISDA taking the lead. This comprehensive state plan addresses point and nonpoint sources, including urban and rural sources. The Strategy includes components such as:

- State agency support and participation in programs to reduce nutrient loadings;
- Prioritization strategy for nutrient reduction practices in targeted watersheds; and
- Description of the methods that will be used to measure success of the Strategy.

The revised Strategy was submitted to EPA in July 2015, with the anticipation of final EPA approval before November. Since the Strategy is a living document, annual updates will be submitted with any changes that occur as programs/initiatives/resources change over time. Once the Strategy has been approved by EPA, the NPS program will review the priorities of the Strategy and, when possible, import objectives of NPS-related importance into the State NPS Management Plan.

United States Department of Agriculture - Natural Resources Conservation Service

The NRCS mission statement is "Helping People Help the Land." Through financial and technical assistance, NRCS works with private landowners towards productive agriculture and a high-quality environment. The guiding principles of NRCS work are service, partnership, and technical excellence. NRCS' primary customers are people who make decisions about natural resource use and management on non-federal land. This includes governments with a responsibility for natural resource use and management.

NRCS assists landowners in Indiana to develop conservation plans and provides technical assistance for natural resource management, including helping to install conservation practices and systems that meet technical standards and specifications. NRCS also provides financial assistance through incentive programs, easement programs, grants, and stewardship payments. NRCS utilizes targeted initiatives to work with partners on protecting critical natural resources in areas of concern. NRCS' standards and specifications are utilized for many of the cost-share practices implemented through §319 grants, and NRCS Farm Bill conservation programs are utilized as one funding source for implementing local watershed management plans.

For Federal Fiscal Year 2014², NRCS programs in Indiana that support NPS pollution reduction/amelioration efforts included:

Conservation Stewardship Program

The Conservation Stewardship Program (CSP) is a voluntary conservation program that encourages producers to address resource concerns in a comprehensive manner by undertaking additional conservation activities and improving, maintaining, and managing existing conservation activities. Indiana received over \$1.2million in CSP funding in FFY 2014. A total of 86 new contracts received funding to treat nearly 58,588 acres of cropland, pasture and forest.

² Final program numbers for FFY 2015 are not available until after October.

Emergency Watershed Protection

The Emergency Watershed Protection Program (EWP) responds to emergencies created by natural disasters and is designed to help people and conserve natural resources by relieving imminent hazards to life and property caused by floods, fires, windstorms, and other natural occurrences. Three EWP contracts for approximately \$227,614 were completed in FY14. These EWP projects saved seven bridges and 170 homes in Plainfield, Indiana.

Environmental Quality Incentives Program

In 2014, the former Wildlife Habitat Incentive Program (WHIP) was folded into EQIP. Indiana received over \$14.05 million in EQIP funding in FY14. A total of 573 contracts were entered into that will address natural resource concerns on 84,000 acres of land over the life of the contracts. These contracts provided financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. EQIP offered several targeted initiatives that provided funding to specific geographic areas and/or resource concerns. These included the On-Farm Energy Initiative, Organic Initiative, and State Specialty Crop.

Agricultural Conservation Easements Program

The Agricultural Conservation Easement Program (ACEP) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements (ALE) component, NRCS helps Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements (WRE) component, NRCS helps to restore, protect and enhance enrolled wetlands. The Agricultural Conservation Easements Program consolidates three former programs - Wetland Reserve Program, Grassland Reserve Program, and Farm and Ranchland Protection Program. During FFY 2014, NRCS helped Indiana landowners protect and restore 865 acres of wetlands under WRE. Approximately \$3.1 million was brought to Indiana for the protection of wetlands.

Regional Conservation Partnership Program

The Regional Conservation Partnership Program (RCPP) is new in the 2014 Farm Bill and promotes coordination between NRCS and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and through program contracts or easement agreements.

RCPP combines the authorities of four former conservation programs – the Agricultural Water Enhancement Program, the Chesapeake Bay Watershed Program, the Cooperative Conservation Partnership Initiative and the Great Lakes Basin Program. Assistance is delivered in accordance with the rules of EQIP, CSP, ACEP and Healthy Forests Reserve Program; and in certain areas the Watershed Operations and Flood Prevention Program.

For FFY 2015, NRCS funded the following projects that affect Indiana:

1. University of Notre Dame's "Preventing Nutrient Loss from Indiana Farms: Watershed-Scale Pairing of Cover Crops and the Two-Stage Ditch" project – The project will assist with adoption of cover crops on 85 percent of cropland, and two-stage ditches along the majority of channelized ditches, in two targeted 12-digit watersheds – the Shatto Ditch watershed (HUC 051201060401) and Kirkpatrick Ditch (HUC 071200020403). Through water quality monitoring, the project will quantify the soil and water quality/quantity benefits from the implementation of these practices in the watersheds. Based on preliminary research, 40 to 45 percent reductions in nutrient loss are achievable with this approach, which will be monitored at the watershed scale. A key component of the project is to accurately document the effect of these practices on environmental conditions (water and soil quality) and estimate the full costs and benefits for both public and private interests. In addition, the data will support modeling efforts that will allow for broader conclusions regarding the effectiveness of these conservation practices, regionally and beyond.
2. Tri-State Western Lake Erie Basin Phosphorus Reduction Initiative – A diverse team of partners will use a targeted approach to identify high-priority sub-watersheds for phosphorus reduction and increase farmer access to public and private technical assistance—including innovative demonstrations of practices that NRCS does not yet cover—in Michigan, Ohio, and Indiana. Identified actions are coordinated with the Ohio Phosphorus Task Force Report and will move Lake Erie toward goals developed in the Great Lakes Water Quality Agreement Annex 4 Nutrient Strategies. The partners will gauge success and monitor results using project-wide water quality monitoring and watershed modeling conducted by national experts from multiple scientific entities and institutions.
3. Michigan/Indiana St. Joseph River Conservation Partnership – The partnership strives to find solutions to the increasing groundwater withdrawals and sediment and nutrient loading that are economically good for the farmer but also have multiple conservation benefits, including optimizing groundwater use, improving infiltration, and reducing nutrients and sediment while also improving wildlife and fisheries habitat. Innovative methods to target high-priority areas and appropriate conservation practices will take an already developed watershed management plan to the next level. Monitoring will be used to adaptively manage this project at various levels, from the field-scale to the entire watershed. Partners have a strong history of working with both NRCS and producers.

IDEM's NPS Program was involved in some way with each of these groups during the project development or application process for the award. For example, in the case of the University of Notre Dame's project, IDEM's NPS Program funded the original Shatto Ditch 2-stage demonstration project (proposed by The Nature Conservancy in FFY 2005) that is one of the focus watersheds for this project. IDEM has since funded TNC to educate about and implement two stage ditches in Indiana and continues to fund the practice as appropriate to reduce NPS in the state. In the Tri-State Western Lake Erie Basin, the IDEM Watershed Specialist and the IDEM Watershed Assessment and Planning Branch Chief worked with a wide variety of state, local, and federal partners to address the Western Lake Erie portion of Annex 4 of the bi-national Great Lakes Water Quality Agreement – 2012. The Specialist attended several meetings with the applicants and reviewed the proposal before it went to the funding agency. Finally, IDEM assisted with the reorganization of the Friends of the St. Joe River, Inc. who worked with

stakeholders throughout the watershed to support the RCPP project in both Indiana and Michigan. IDEM has also provided financial and technical assistance to local watershed groups on the Indiana side of the watershed.

Mississippi River Basin Initiative

Through the Mississippi River Basin Healthy Watersheds Initiative (MRBI), NRCS and its partners work with producers and landowners to put in voluntary conservation practices that improve water quality, restore wetlands, enhance wildlife habitat, and sustain agricultural profitability in the Mississippi River Basin. In FFY 2014, an MRBI partnership agreement was in place in the Middle Eel River watershed. There were 5 targeted MRBI contracts in Indiana in FFY 2014 that provided over \$306,000 to landowners and treated 791 acres of land. In FFY 2015, NRCS embarked on “Phase 2” for the MRBI program. States were asked to identify up to five 12-digit watersheds where focused EQIP funding to farmers could help meet nutrient reduction goals for the basin. Funding became available beginning in FFY 2015 and will continue through FFY18. To be eligible, a candidate 12-digit watershed must be identified on the State’s list of 8-digit watershed priorities in the State Nutrient Reduction Strategy. IDEM cross-referenced eligible watersheds with approved watershed management plans and active watershed efforts to provide the Indiana State Technical Committee (ISTC) with a list of candidate watersheds with the capacity to implement the program and demonstrate success. The ISTC utilized that list, alongside information from other partners, to choose five 12-digit watersheds, three of which have IDEM-approved watershed management plans and groups ready to implement those plans: Little Wea Creek (HUC 051201080105), Prairie Creek (HUC 051202010601), and Tobin Ditch (051202010605). The IDEM Watershed Specialist participated in the kickoff meeting for the latter two watersheds and provided a GIS map. Two more watersheds are covered under the Big Pine Creek WMP, which is currently under review by IDEM and U.S. EPA: Big Pine Creek Ditch (HUC 051201080402) and Little Pine Creek (HUC 051201080403).

National Water Quality Initiative

The NRCS and the EPA collaborated in FFY 2012 on a national effort to increase agricultural BMPs in critical watersheds. This effort was called the National Water Quality Initiative (NWQI). Five percent of each state’s Environmental Quality Incentives Program (EQIP) funds were to be dedicated to one to three priority 12-digit watersheds with a goal of showing water quality improvement. In Indiana, NRCS coordinated with IDEM to choose three watersheds that met the following criteria: watershed is impaired (listed on the 2008 303(d) list) for pollutants associated with agricultural run-off; largely agricultural in land use; identified as critical areas in IDEM-approved watershed management plans; has a currently-active locally-led watershed group; there is a perceived willingness of producers to implement BMPs through EQIP; and there is a strong monitoring program in place to measure change. In addition, the NRCS State Technical Committee added a criterion for “drinking water source.” The three 12-digit HUC watersheds chosen were Silver Creek (HUC 051201040501), Ell Creek (HUC 051202090405) and Eagle Creek (HUC 051202011108). These three watersheds have persisted as a part of the NWQI since FFY 2012. In FFY 2014, NRCS contributed \$403,726 under the NWQI to conservation efforts on ten contracts in Indiana to treat 1,149 acres of land. In aggregate, NRCS has obligated a total of over \$1.5 million on 6,871 acres in these three watersheds.

In FFY 2015, NRCS (with input from IDEM) added Beargrass Creek (HUC 051201040509) as an NWQI watershed. Beargrass Creek is a portion of the Middle Eel River watershed, covered under the [Middle](#)

[Eel River Watershed Management Plan](#). This watershed also has funding as a critical area under a \$500,000 FFY 2012 §319 implementation grant. Signups for this watershed have obligated \$1,076 to 38.4 acres for fiscal year 2015.

Under the national schema for the NWQI, monitoring for change at the stream/watershed level falls to the state water quality agencies. In FFY 2014, IDEM partnered with the USGS, the Marion County Health Department, the Center for Earth and Environmental Science at Indiana University-Purdue University Indianapolis, and farmers to initiate monitoring at multiple scales on School Branch in Eagle Creek watershed (HUC 051202011108). IDEM began monitoring at its fixed station sites on School Branch in April 2014.

In addition, the IDEM NPS program has provided implementation funding for Silver Creek and Eel Creek watersheds through the §319 grant program. Both of these watersheds are part of larger implementation efforts on a multiple 10-digit scale (Silver Creek – [Middle Eel WMP](#); Eel Creek – [Middle Patoka River Source Water Protection Plan](#)).

Indiana Association of Soil and Water Conservation Districts

The mission of the Indiana Association of Soil and Water Conservation Districts is to enable the conservation of the natural resources of Indiana. The IASWCD promotes the wise use of Indiana's natural resources by providing information and outreach in support of statewide efforts to develop and enhance Indiana's watershed programs that help address NPS pollution.

Indiana's Conservation Cropping Systems Initiative (CCSI) is a collaboration between the ICP organizations, the agriculture industry and Indiana farmers. With oversight from ICP representatives and administrative responsibility from the IASWCD, the CCSI promotes a systematic conservation approach to production agriculture through field days, seminars and one-on-one consulting. The systems approach to better soil health coupled with an innovative method for educating farmers, positively and directly improves soil structure, resulting in improved water infiltration, less runoff, decreased erosion, and reduced incidence of flooding – all impacting the sustainability and productivity of Indiana's soil and water quality. The program has grown to provide high level technical training for ICP staff and farmers so they can help provide technical assistance to others. Soil health measurements and economic case studies are also being conducted.

Since its inception, CCSI partners have taken over 3800 samples in replicated strip trials with over 148 strips (data collected includes cover crop biomass and nitrogen (N) uptake, plant available soil N, soil moisture, soil temperature, basic soil fertility, corn leaf chlorophyll, stalk nitrate, and results from four soil health tests) and conducted over 200 educational events with audiences totaling over 7000 farmers and agriculture professionals. In the fall of 2014, a survey was conducted and provided results of over 1 million acres of cover crops planted. Results for residues and soil undisturbed on harvested acres during the winter months include: 77% of corn acres, 79% of small grain acres, and 82% of soybean acres.

Through the Annual Conference of the IASWCD, relevant sessions directly and indirectly address NPS pollution. The technical, capacity building, outreach and education and conservation implementation session tracks provide a wide variety of topics. Expert presenters and facilitators share their expertise and knowledge during this two and a half day event with designated sessions offering Continuing Education Units (CEUs). IDEM NPS staff presented at two sessions and moderated four of the 2015

Annual Conference. Additionally, this annual event provides attendees with the opportunity to connect with other like-minded colleagues and hear inspirational speakers.

The IASWCD provides conference scholarships to qualifying SWCD Supervisors. Nine SWCD Supervisor scholarships were awarded for the 2015 Annual Conference; thus, providing further opportunities for education for the wise use and management of Indiana's natural resources.

The IASWCD provides significant resources to the ever popular Pathway to Water Quality (PWQ) Exhibit; a popular fixture at the Indiana State Fairgrounds since 1993. The exhibit is an excellent watershed demonstration site, showing how proper management practices at home, on the farm and in business can protect our soil and water resources. The PWQ exhibit contains practical displays and information for anyone who uses the land. The PWQ exhibit is managed and maintained by the ICP. The IASWCD, along with a contribution agreement from NRCS, provides a PWQ Coordinator to oversee the project and committee (about \$12,000 total). IDEM participates on the PWQ Advisory committee and helps staff the exhibit during the Indiana State Fair each year.

The IASWCD *Conservation Update*, a biweekly electronic publication, communicates issues, events and resources in watershed management statewide. The *Conservation Update* is an excellent tool to acknowledge successful watershed practices through the Annual River Friendly Farmer Awards and the District Showcase Awards. The Indiana State Fair Farmer's Day provides an excellent setting for the award presentations. The Indiana Conservation Farmer of the Year and Friend of Conservation awards are presented annually during the Annual Conference of Indiana Soil and Water Conservation Districts. Acknowledgment through these venues, local and statewide media and the *Conservation Update*, offers additional opportunities to increase public awareness and supports successful nonpoint pollution reduction practices.

The IASWCD Funding Resources web page can be accessed through the IASWCD web site. The web page is updated on a continual basis and provides pertinent development and education resources for Indiana's watershed groups, SWCDs and conservation partners. The web page features funding and grant information; organizational and professional development opportunities and a calendar of events. The Funding Resources web page can be accessed from the [IASWCD web site](#).

Indiana State Department of Agriculture

The ISDA - Division of Soil Conservation (Division) works along with the State Soil Conservation Board (SSBC) to enhance the stewardship of Indiana's soil and water resources. This is done by providing face-to-face, on-the-land technical and financial assistance for implementing conservation practices, supporting Indiana's 92 Soil and Water Conservation Districts (SWCDs), and promoting the opportunities and benefits associated with caring for our soil and water resources.

The Division employs Resource Specialists throughout the state to directly assist landowners with the planning and implementation of conservation practices addressing specific soil and water resource concerns. Resource Specialists work with regional Conservation Implementation Teams (CIT) alongside staff from the NRCS and SWCDs. The ISDA Resource Specialists assist with the planning, survey, design, and construction of thousands of practices annually. The common practices that these professionals work on include but are not limited to - filter strips, grassed waterways, forested and grassed buffers, water and sediment control basins, wetland restorations, and livestock watering systems. The Resource

Specialists also work with the SWCDs to help them carry out Clean Water Indiana programs, and assist with educational events for youth, adults and farmers/landowners.

The Division also employs District Support Specialists, through the SSCB Clean Water Indiana Fund, to work directly with the local SWCDs to develop conservation priorities, goals, and plans for their respective territories. The District Support Specialists prepare and conduct trainings for SWCD supervisors and staff. They are also a resource for SWCDs in carrying out their legal and operational responsibilities.

Conservation Reserved Enhancement Program (CREP)

CREP provides both state and federal incentives to landowners who are willing to install water quality and erosion prevention practices directly adjacent to eligible surface waters. This program is possible through an agreement between the State of Indiana and the USDA-FSA. ISDA administers the CREP program on behalf of the State. This program is designed to help alleviate some of the concerns of high nonpoint source sediment, nutrient, pesticide, and herbicide losses from agricultural lands by restoring buffers and wetlands to improve water quality.

The program expanded in August 2010 from the original three watersheds--Pigeon-Highland, Tippecanoe, and Upper White River—to 11 watersheds. The expanded CREP area now includes Lower Wabash, Lower White, Lower East Fork White, Upper East Fork White, Middle Wabash-Busseron, Middle Wabash-Little Vermillion, Middle Wabash-Deer, and Upper Wabash Watersheds. The eleven targeted watersheds include an acreage enrollment goal of 26,250 acres within eleven watersheds in Indiana, covering a total of 65 Indiana counties. Eligible practices through the CREP include Permanent Native Grasses, Hardwood Tree Planting, Wildlife Habitat, Riparian Forest Buffers, Filter Strips, Wetland Restorations, and Bottomland Timber Establishment. To date, over 9,000 acres of conservation practices have been enrolled or installed along Indiana's rivers, lakes, and streams under the Conservation Reserve Enhancement Program.

Clean Water Indiana Program

The Clean Water Indiana Program (CWI) was established by the Indiana Legislature to provide financial assistance to SWCDs, landowners and conservation groups. The financial assistance supports the implementation of conservation practices which will reduce nonpoint sources of water pollution through education, technical assistance, training, and cost sharing programs. The CWI fund is administered by the Division under direction of the SSCB.

The CWI Program is responsible for providing local matching funds as well as grants for sediment and nutrient reduction projects for Indiana's SWCDs. CWI also contributes critical state matching funds for Indiana's CREP. Furthermore, the CWI Program supports the Indiana CCSI, which focuses on a management systems approach to crop production resulting in improved soil and water quality as well as profitability on Indiana cropland.

The SWCDs use the CWI grant money in four basic areas: providing cost-share/incentives to landowners for applying conservation practices such as cover crops; purchase of equipment for the purpose of renting it to land users for applying conservation practices; contracting for technical assistance to plan, survey, design and oversee construction of conservation practices; and for non-point source pollution

prevention related information materials, planning assistance and projects. These projects address at least two of the State priorities, as identified in the SSCB Business Plan adopted in 2010, including soil quality degradation, water quality impairments, and other soil and water related natural resource concerns. From 2011-2013, CWI watershed grants were approved throughout Indiana impacting a total of 85 counties. In 2013, the SSCB awarded over \$540,000 in CWI grants to multiple SWCDs resulting in the implementation of 757 conservation practices. In 2014, approved CWI grants to the SWCDs totaled \$579,000, which impacted 29 counties. Through these grants in 2014, 545 conservation practices were completed. For 2015, 14 CWI grants were approved for \$1,020,900 in grant funds to be used for a wide variety of projects impacting 35 counties.

Furthermore, from 2010-2015 the SSCB allotted CWI funds for the CCSI, along with NRCS. The intent of CCSI is to promote a systematic approach to production agriculture focusing on continuous no-till/strip-till, cover crops, precision farming, nutrient and pest management, and conservation buffers resulting in improved soil quality, water quality, and profitability on Indiana cropland. Through this program, agronomy professionals provide very specific education and technical assistance to agricultural producers and conservation staff directed at production efficiency and nutrient/sediment runoff reduction. To date, over 250 field days and workshops have been held, reaching over 15,000 people through CCSI, over 190 agency employees and 52 industry staff have received CCSI trainings, and recent CCSI surveys estimate that nearly 1 million of Indiana's 12 million acres in cropland are covered by one or more cover crops.

INfield Advantage (INFA) (previously known as On-Farm Network)

INfield Advantage is a proactive, collaborative opportunity for farmers to collect and understand personalized, on-farm data to optimize their management practices to, ultimately, improve their bottom line and benefit the environment. Participating farmers use precision agriculture tools, protocols, and technologies, such as aerial imagery and the corn stalk nitrate test to conduct in-depth nitrogen analysis on their own farms and to determine nitrogen use efficiency in each field that they enroll. This concept is considered adaptive management and generally results in changes that increase profitability of the producer and ultimately has a positive impact on water quality. This program was developed to address key challenges in advancing water quality goals in the state related to production agriculture. The adaptive management process has shown most growers can reduce their nitrogen rates by one-third while maintaining or increasing profitability. Field history information is also collected from every participating farmer – previous crop, manure history, manure applications, commercial N applications (including timing of application, form, and rate) and tillage. This information is combined with analysis of results from the on farm evaluation plots comparing different management practices (timing, form, application rate, etc.). All data collected through INFA is anonymous. Reports can never be linked to a name or specific location. The data is reported back to the participating farmer as their individual farm data and as aggregate data results. The aggregate results can be used publically for educational purposes.

The program started in 2010 as a pilot project in Jasper County in northwest Indiana, and included 15 producers, 39 fields and 2,700 acres. It has expanded over the last 6 years to now include many areas of the state. In 2015, there are 29 groups including 346 producers, 828 fields, and 57,960 acres.

ISDA Technical Assistance for Agriculture Project

A persistent obstacle to the installation of NPS mitigating practices in Indiana has been a lack of field technical staff to “sell” and design best management practices for agricultural land. In response to this need, in 2010, IDEM allocated \$319 funds for a project with ISDA to hire and train three technical staff to serve primarily in three watersheds in the Wabash Basin with known water quality issues: Tippecanoe, Eel, and Upper Wabash. From July 2011 through November 2014, several technicians were trained by ISDA, NRCS, and through attendance at education events, trainings, field days and workshops. The technicians provided technical assistance and helped implement BMPs through both state and federal agricultural programs aimed at reducing sediment and nutrient runoff to Indiana’s surface waters. The technicians also assisted the NRCS and SWCD staff with landowner customer service and conservation program signups. During the project the technicians assisted with the planning, design, or installation of many practices known to reduce NPS pollution, including:

Brush Management: <i>146.9 acres</i>	Nutrient Management: <i>5,990.5 acres</i>
Closure of Waste Impoundment: <i>1</i>	Pest Management: <i>5,964.5 acres</i>
Comprehensive Nutrient Management Plan: <i>1</i>	Pollinator Habitats: <i>6.9 acres</i>
Conservation Cover: <i>103.8 acres</i>	Residue and Tillage Management/No-Till: <i>4,606.1 acres</i>
Cover Crops: <i>9,847.1 acres</i>	Seasonal High Tunnels: <i>3</i>
Bottomland Timber Establishment: <i>77.0 acres</i>	Sub-surface Drainage: <i>5,345 feet</i>
Field Borders: <i>460 feet, 0.5 acres</i>	Tree and Shrub Establishment: <i>262.6 acres</i>
Filter Strips: <i>39,850 feet, 67.1 acres</i>	Upland Wildlife Habitat Management: <i>45.6 acres</i>
Forage and Biomass Planting (Hayland Plantings): <i>175.1 acres</i>	Waste Facility Cover: <i>3</i>
Forest Management Plan: <i>3</i>	Waste Storage Facility: <i>4</i>
Forest Stand Improvement: <i>256.2 acres</i>	Waste Utilization: <i>95.4 acres</i>
Grade Stabilization Structures: <i>22</i>	Water and Sediment Control Basins: <i>31</i>
Grassed Waterways: <i>177,938 feet, 155.3 acres</i>	Wetland Creation: <i>2.0 acres</i>
Heavy Use Area Protections for Livestock: <i>6</i>	Wetland Restoration: <i>34.0 acres</i>
Lined Outlets for Waterways: <i>4</i>	

In 2011, ISDA adopted the use of the Region 5 Nutrient Load Reduction Model to estimate load reductions for these watersheds. Load reductions for the BMPs implemented are as follows:

Sediment – 31,577 tons
Phosphorus – 37,795 lbs.
Nitrogen – 78, 653 lbs.

ISDA saw the value of using this model as a means to measure the load reductions coming from all projects in Indiana that were receiving technical assistance from all staff, not just from the three staff working in the 319 funded watersheds. Its use has been standardized by ISDA, and the Region 5 model is now used statewide to model all the conservation practices that are implemented through assistance of all the ICP partnership staff. Reports that are generated as a result of the use of this model show an

annual consolidated reporting of load reductions from conservation practices across Indiana and may be found at <http://www.in.gov/isda/2991.htm>.

Indiana Department of Natural Resources

Lake and River Enhancement Program

The legislation establishing the Lake and River Enhancement (LARE) program in IDNR's Division of Fish and Wildlife charges the Department with the responsibility to "Administer a lake and river enhancement program to do the following: (A) Control sediment and associated nutrient inflow into lakes and rivers, and (B) Accomplish actions that will forestall or reverse the impact of that inflow and enhance the continued use of Indiana's lakes and rivers." An amendment in the 2011 General Assembly added use of LARE funds to remove logjams or obstructions in rivers. In March of 2015 \$109,600 was granted for three logjam removal projects in Indiana.

The conservation of natural resources, including aquatic wildlife and protecting the water quality of Indiana lakes and rivers are important goals. They are addressed with grants to sponsors for projects to protect and enhance aquatic habitat for fish and wildlife. The effort to insure the continued viability of Indiana's publicly accessible lakes and streams for multiple uses, including recreational opportunities, is important since funding comes directly from boat-owners in Indiana. A lake and river enhancement fee annually assessed by the Indiana Bureau of Motor Vehicles (BMV) is collected when boats are registered. These funds are used for the LARE program as well as IDNR Division of Law Enforcement for aquatic safety programs and maritime patrols.

To accomplish the goals of the LARE program, grants have been made available for technical and financial assistance to local and county agencies and non-governmental entities (such as a lake or homeowner association) for qualifying projects since 1989. LARE-funded projects that reduce sedimentation and nutrient runoff include the installation of grass cover, filter strips, and stream bank or shoreline stabilization structures. In March of 2015 over \$767,000 in 47 grants were awarded to address control of invasive aquatic species, sediment removal from publicly accessible lakes, and logjam removal from rivers. In July of 2015, 33 grants totaling \$1,290,880 were awarded for new biological, diagnostic, design and construction projects on lakes and rivers as well as several new and continuing Watershed Land Treatment (WLT) projects with county Soil and Water Conservation Districts. These latter efforts involve land users working to put in place various measures that reduce sediment and nutrients from leaving the land and traveling into lakes and rivers promote improved water quality. Many projects also include active measures to improve aquatic habitat. The end result of these efforts result in enhanced opportunities for boating, fishing, and other recreational pursuits, and tend to promote increased economic value for businesses, communities, and individuals who live on or use these water bodies.

Indiana Lake Michigan Coastal Program

The purpose of the Indiana Lake Michigan Coastal Program (LMCP) is to enhance the state's role in planning for and managing natural and cultural resources in the coastal region and support partnerships between federal, state, and local agencies and organizations. The IDNR is the lead agency implementing the LMCP and the program houses a full-time Coastal Special Projects Coordinator (formerly Coastal NPS

Coordinator) who provides technical assistance, education and outreach, and coordinates efforts toward the achievement of management measures that combat sources of NPS pollution.

The LMCP makes available approximately \$600,000 annually through the Coastal Grants Program for projects to protect and restore natural, cultural, and historic resources in Indiana's Lake Michigan coastal region. Project categories include land acquisition (example: riparian corridors), low cost construction (example: natural area restoration and BMP installation), education and outreach, and planning/coordination/management (example: land use planning and ordinance development). In the 2013/2014 grant cycle project applications were received and grants awarded to communities, universities, and schools that will result in NPS runoff reduction and water quality improvements consisting of BMPs to prevent sediment and pollutant discharges, low-impact development practices to maximize storm water infiltration and use of native plants, wetland protection practices, and studies to identify contaminated load reductions by rain gardens. The Request for Proposals for the 2016 LMCP Grant cycle was issued in July of 2015.

As part of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), Congress created a stand-alone provision, Section 6217, which requires that states and territories with approved coastal zone management programs develop a Coastal NPS Pollution Control Program to address water quality impairment of coastal waters. The purpose of the program is to develop and implement management measures for NPS pollution to restore and protect coastal waters. The DNR LMCP and IDEM §319 Program staff work together to coordinate with other state and federal NPS agencies to meet the requirements of this program. The LMCP Special Projects Coordinator is responsible for 6217 development and implementation through collaboration with federal, state, and local partners.

In March 2015, the Indiana Coastal Program received a National Oceanic and Atmospheric Administration (NOAA)/EPA Interim Decision Letter approving four additional 6217 measures based on an Indiana Coastal Program submittal in September 2014. The four measures included Erosion and Sediment Control and Nutrient Management Measures in the Agriculture Category, Technical Assistance, and Additional Management Measures. Based on the Findings of the NOAA 312 Audit of the Indiana Coastal Program conducted in 2014, Indiana must provide a Strategy and Timeline to NOAA by November 30, 2015, for achieving approval from NOAA/EPA for the remaining unapproved 6217 management measures which include Pesticide Management, Grazing Management, Operating Septic System Management, Protection of Wetlands, and Enforceable Policies. The LMCP Staff met with the IDEM in August to review and finalize the draft Strategy and Timeline for achieving full approval and making a timely submission to NOAA.

The LMCP is working with local SWCDs, NRCS, and Purdue Extension staff to develop submittals to NOAA/EPA for the 6217 Pesticide Management and Grazing Management Measures. The DNR is assisting with the submittal for the Wetland Protection Measure, and the IDEM is assisting with the enforceable Policies submittal. Coastal County Health Departments, the Indiana State Department of Health and the NW Indiana Septic System Coordination Work Group (see below) are providing assistance, and developing ordinances and programs that will contribute to meeting the Operating Septic System Management Measure.

As part of ongoing Coastal NPS Program implementation, the LMCP partners with the IDEM to oversee the Indiana Clean Marina Program. This voluntary, incentive based program encourages marinas and recreational boaters to implement environmentally sound practices to protect Indiana's inland and

coastal waterways. Since the program's inception in 2009, five Coastal area marinas have been designated officially as Clean Marinas: Hammond Marina, Trail Creek/Sprague Point Marina, Washington Park Marina, Portage Marina, and most recently Marina Shores Marina at Dune Harbor in July 2015. In April of 2015, the Coastal Program and the IDEM organized a Clean Marina Roundtable for Indiana Clean Marinas and potential new clean marinas. Indiana marinas want to make the Clean Marina Roundtable an annual event. Additionally, in support of the Clean Marina program in 2014-2015 the LMCP distributed Clean Marina and Clean Boater educational materials at marina and boating public events throughout the year.

In 2014-2015 LMCP continued its partnership with the Indiana State Department of Health (ISDH), IDEM, local Health Departments, watershed groups, and local agencies and communities to promote the utilization of the state's online septic system tracking database and the adoption of best practices to support operating and inspection programs in the Coastal region. LMCP convenes NW Indiana Septic System Coordination Work Group which meets bi-monthly with Federal, State, and Local governments in addition to interested stakeholders to develop a coordinated approach to eliminating the impacts of poorly maintained and failing septic systems on coastal water quality. In 2014 and 2015 LMCP partnered with the ISDH, IDEM, EPA and the Septic System Work Group to promote the Annual EPA SepticSmart Week in the coastal Region through distribution of SepticSmart education materials, community resolutions, and print and radio/television outreach. Septic System Awareness Focus Groups are being conducted by Septic Coordination Group members in the Coastal Region to identify what education elements and method of communication will best serve improving operation and maintenance by septic system owners. LMCP and the ISDH are working with the Indiana State Realtors Association to develop a Septic System information presentation for the Association's Realtor continuing education program to be piloted in Fall of 2015.

The IDEM Lake Michigan Lakewide Management Plan Manager and the Coastal Program Special Projects Coordinator convened a Lake Michigan Watershed Coordination Group in 2014 -2015 to identify regional watershed planning and implementation needs, partnership opportunities, and avenues for coordination with the goals and objectives of the Lake Michigan Lakewide Management Plan. The July 2015 meeting of the group focused on the IDEM External Data Framework as a vehicle for incorporation of monitoring data from diverse projects and programs in the Lake Michigan Coastal Watershed.

Healthy Rivers Initiative (HRI)

The Healthy Rivers Initiative, led by the IDNR, is the largest conservation initiative to be undertaken in Indiana. The initiative includes a partnership of resource agencies and organizations who are working with willing landowners to permanently protect 43,000 acres located in the floodplain of the Wabash River and Sugar Creek in west-central Indiana and another 26,000 acres of the Muscatatuck River bottomlands in southeast Indiana. HRI partners include the IDNR, U.S. Fish & Wildlife Service, NRCS, and The Nature Conservancy of Indiana.

These projects involve the protection, restoration and enhancement of riparian and aquatic habitats and the species that use them, particularly threatened, endangered, migratory birds and waterfowl. This initiative will also be beneficial to the public and surrounding communities by providing flood protection to riparian landowners, increasing public access to recreational opportunities, and leaving a legacy for future generations by providing a major conservation destination for tourists.

At the conclusion of the first five years of the HRI, in June of 2015, 32,603 acres of land are permanently protected, with 9,216 acres acquired by DNR in the Wabash River Project Area, 2,530 acres enrolled in the USDA Wetlands Reserve Program (WRP) that are not owned by DNR to complement the existing 12,723 acres of state-owned land. In the Muscatatuck Project Area, 4,226 acres were acquired; 1,419 acres were enrolled in the WRP that are not owned by DNR, complementing the existing 2,489 acres of state-owned land. To date, a total of 10,749 acres are now open to the public for hunting, fishing, trapping, boating, and birdwatching.

Indiana State Revolving Fund Loan Program

The Indiana State Revolving Fund (SRF) Loan Program finances projects that abate or prevent NPS pollution of Indiana's waters. The SRF Program has traditionally provided low interest loans to Indiana communities for projects that improve wastewater and drinking water infrastructure. The Program has been expanded to fund projects that meet the objectives in the State NPS Management Plan. The money loaned to these NPS projects also is documented as match, when applicable, for the state \$319 Grant Program. Eligible NPS projects must provide water quality benefits to their respective communities and may include one or more of the following:

- Wetland restoration/protection;
- Erosion control measures;
- Ground water remediation;
- Storm water BMPs;
- Source water and wellhead protection;
- Failing septic system - repair, replacement and connection to sewer;
- Brownfield remediation;
- Conservation easements; and
- Agricultural and waste management BMPs.

This reporting period, the SRF Program loaned \$4.8 million to one community on a project to reduce NPS pollution by extending sanitary sewers to areas with septic systems, thereby eliminating this potential source of pollution. Twenty-four septic systems will be eliminated through this project. Throughout the life of the SRF NPS Program, \$214 million has been loaned for NPS purposes. Approximately 12,000 septic systems have been removed from service and seven Brownfield sites have been remediated.

The NPS Program has also made a specific effort to coordinate with the Wastewater SRF (WWSRF) Program to link loan applicants with local watershed groups. Each quarter, when the WWSRF's Priority Project List is made available, the NPS program identifies those applications that fall within an area covered by a WMP or a Total Maximum Daily Load (TMDL) report. The NPS program then determines, with the help of WWSRF staff, whether or not those applicants have taken advantage of the 0.5% interest break available for projects that include a NPS or green project. If no such project has been identified, and a WMP includes a project that may help the applicant qualify for the reduced interest rate, the application is flagged for contact.

GOAL 2: MONITOR AND ASSESS INDIANA WATERS FOR NONPOINT SOURCE IMPAIRMENTS AND IMPROVEMENTS

Without monitoring and assessment, it would be difficult to quantify the magnitude of the NPS pollution problem and gains made in water quality through NPS actions. In order to grasp the extent and impacts of NPS pollution in the state, IDEM uses several water quality monitoring approaches, including targeted and probabilistic monitoring designs, as outlined in the *Indiana Water Quality Monitoring Strategy 2011-2019*. Assessment of the data obtained through monitoring follows protocols outlined in the *2014 Consolidated Assessment and Listing Methodology*. Highlights of significant progress in monitoring and assessment of Indiana's waters for NPS during FFY 2015 are included below. A full accounting of progress made this year toward the objectives of Goal 2 in the State NPS Management Plan can be found in Appendix A.

IDEM Water Quality Monitoring

The OWQ conducts water quality monitoring and assessments each year to determine statistically the degree to which waters within a given basin support aquatic life, human health, and recreational uses. Water quality monitoring is conducted in a different basin each year using a probabilistic approach. In 2011, IDEM implemented a new water quality monitoring strategy in which monitoring is conducted in one of nine basins each year (Figure 2). This will result in a statistically comprehensive and updated data set for the entire state in 2019.

In 2015, IDEM sampled probabilistically in the Upper Wabash River Basin (HUCs 05120101, 05120102, 05120103, 05120104, 05120105, 05120106, and 05120107). The results of this monitoring effort will be used to:

1. Provide data on which to base statistical comprehensive assessments of state waters (305(b))
2. Provide data on which site-specific assessments can be made for the waterbodies' attainment of Indiana's designated uses (303(d))
3. Identify impairments for which TMDLs should be created for NPS and point sources
4. Provide baseline data for watershed management decisions, where possible.

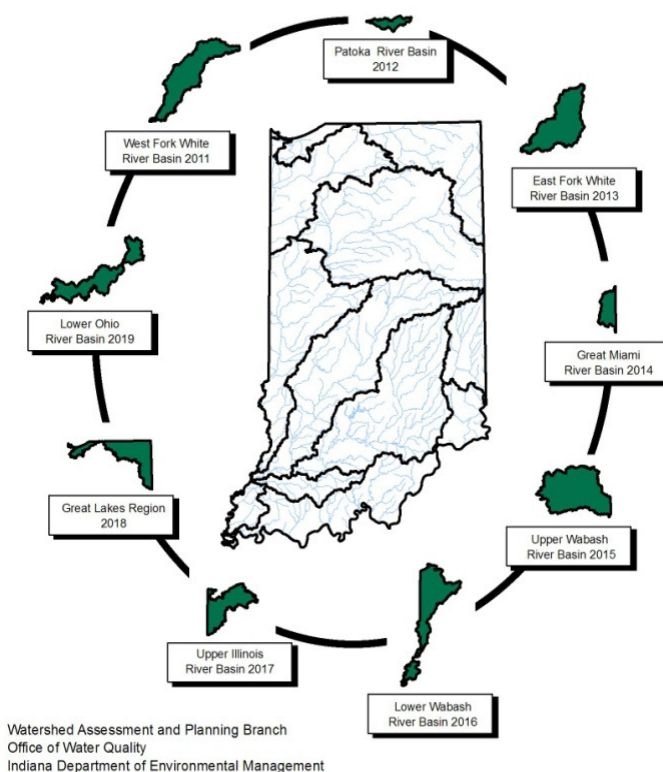


Figure 2 IDEM's 9-Year Rotating Basin Monitoring and Assessment Approach.

IDEM's NPS monitoring also includes two types of targeted monitoring: performance measures monitoring (monitoring for success, measured under the EPA's SP-12 and WQ-10 measures) and baseline watershed characterization monitoring.

Targeted Monitoring for Success (Measure W/SP-12 and Success Stories/WQ-10)

Part of the EPA's strategy for showing improvement in NPS pollution impairment is through Measure W and Success Stories' submissions by the states. In order to show improvement, states must show that:

- 1) One or more of the waterbody/impairment causes identified in 2002 are removed, as reflected in EPA-approved state assessments, for at least 40% of the impaired water bodies or impaired stream miles/lake acres in the watershed; OR
- 2) There is a significant watershed-wide improvement, as demonstrated by valid scientific information, in one or more water quality parameters or related indicators associated with impairments.

Targeted monitoring to measure water quality improvement as a result of NPS grant projects was initiated in 2009. Monitoring for success continued this period in the Silver Creek (HUC 051201040501), Flowers Creek (HUC 051201040601), and Indian Creek (Switzerland County – HUC 050902030902) watersheds. Samples are still being processed and IDEM reserves judgment as to whether any of the sampling in these watersheds showed improvement

Baseline Monitoring/Watershed Characterization Studies

Two conditions led to the decision by IDEM to conduct baseline watershed characterization studies in a limited number of watersheds each year. First, many watershed groups in Indiana lack the expertise to set up and use equipment to conduct a monitoring program that will provide complete baseline data for their watershed management plans. Secondly, in order to meet the data quality objective of delisting, IDEM needs to have a scientifically-defensible baseline to compare with follow-up monitoring. Monitoring began in 2011 in the Plummer Creek watershed and has continued to the present for additional watersheds. In FFY 2014, it was further decided that all baseline projects would be conducted for the combined purposes of monitoring in order to prepare TMDLs and provide sufficient baseline monitoring to measure change after the preparation and implementation of a watershed management plan. Thus, the name of these studies has been changed to "Watershed Characterization" studies. The following is a status update of all ongoing watershed characterization studies and studies closed in FFY 2015.

Southern Whitewater River (HUCs 0508000305, 0508000306, 0508000308) – 33 sites were selected for water quality monitoring following a modified geometric design and targeted site selection as described in the [2013 Sampling and Analysis Workplan for Baseline Monitoring of the Southern Whitewater River Watershed](#). Parameters sampled included *E. coli*, alkalinity (as CaCO₃), total solids, total suspended solids, sulfate, chloride, hardness (as CaCO₃), ammonia nitrogen, total Kjeldahl nitrogen, nitrate + nitrite, total phosphorus, total organic carbon, chemical oxygen demand, dissolved oxygen, temperature, pH, conductivity, turbidity, stream flow, fish community, macroinvertebrate community, and habitat-related parameters (e.g. embeddedness, canopy cover). Data collection began in November 2013 and concluded in October 2014. The data collected has

been used to write a Southern Whitewater TMDL and will be incorporated into the Section 319 planning project ongoing in the watershed.

Upper Mississinewa River (HUCs 0512010302, 0512010303, 0512010304) – 35 sites were selected for water quality monitoring following a modified geometric design and targeted site selection as described in the [2014 Sampling and Analysis Workplan for Baseline Monitoring of the Upper Mississinewa River Watershed](#). Parameters sampled included total phosphorus, nitrate + nitrite, alkalinity (as CaCO₃), total solids, total suspended solids, total dissolved solids, sulfate, chloride, hardness (as CaCO₃), ammonia nitrogen, total Kjeldahl nitrogen, total organic carbon, chemical oxygen demand, dissolved oxygen, pH, specific conductance, dissolved oxygen percent saturation, temperature, turbidity, stream flow, *E. coli*, fish community, macroinvertebrate community, and habitat-related parameters (e.g. embeddedness, canopy cover). Data collection began in April 2014 and concluded in March 2015. A TMDL is being written using those data, which will be incorporated into the Section 319 planning project ongoing in the watershed.

South Fork Blue River (HUC 0514010406) – 21 sites were selected for water quality monitoring following a modified geometric design and targeted site selection as described in the [2015 Sampling and Analysis Workplan for Baseline Monitoring of the South Fork Blue River](#). Parameters sampled included alkalinity (as CaCO₃), total solids, total suspended solids, total dissolved solids, sulfate, hardness (as CaCO₃), total phosphorus, nitrate+nitrite-nitrogen, ammonia nitrogen, total Kjeldahl nitrogen, water temperature, specific conductance, dissolved oxygen percent saturation, total organic carbon, chemical oxygen demand, turbidity, chloride, dissolved oxygen, pH, stream flow, *E. coli*, fish community, macroinvertebrate community, and habitat-related parameters (e.g. embeddedness, canopy cover). Data collection began in November 2014 and is scheduled to conclude October 2015.

Salt Creek (HUC 0512020808) – 27 sites were selected for water quality monitoring following a modified geometric design and targeted site selection. Site reconnaissance took place in July 2015. Data collection is scheduled to begin in November 2015 and be complete in October 2016. A workplan for the project is in progress.

Ground Water Monitoring

Ground water monitoring continued during the 2015 field season. Three-hundred wells were sampled for over 400 point and NPS parameters, including nitrate and pesticide break-down products. Continued annual sampling will give IDEM an opportunity to explore trend analysis, seasonal variations, and the relationship between sensitivity and hydrogeological setting. Ultimately, this type of sampling can provide the information needed to characterize causes, sources, and magnitude of NPS pollution in ground water.

Additional Water Quality Monitoring

Water quality monitoring is not just conducted by IDEM. Other monitoring activities are being conducted around the state and are also important to the NPS Program. Many §319 projects conduct monitoring as part of their work to reduce NPS pollution. These monitoring efforts and the subsequent data generated are shared and used by IDEM and others for many different purposes.

Hoosier Riverwatch Volunteer Monitoring Program

[Hoosier Riverwatch](#) (HRW), a program of IDEM's Watershed Assessment and Planning Branch, is a volunteer water quality monitoring initiative to increase public awareness of water quality issues and concerns by training volunteers to monitor stream water quality. The mission of HRW is "To involve the citizens of Indiana in becoming active stewards of Indiana's water resources through watershed education, water monitoring, and clean-up activities." This mission is accomplished through the following goals:

- Educate citizens on watersheds and the relationship between land use and water quality.
- Train citizens on the basic principles of water quality monitoring.
- Promote opportunities for involvement in water quality issues.
- Provide water quality information to individuals or groups working to protect water resources.
- Support volunteer efforts through technical assistance, monitoring equipment, networking opportunities, and educational materials.

HRW accomplishes its mission through providing monitoring equipment, supporting workshops to train volunteers, distributing water quality news to volunteers and stakeholders, and managing an online database as a repository of data collected by volunteers. In FFY 2015, Hoosier Riverwatch has supported 25 (24 Basic and 1 Advanced *E. coli*) local workshops, educated and trained 222 water quality monitoring volunteers throughout Indiana. The HRW Coordinator trained and equipped 10 new instructors, bringing the active total back up to 36. There are currently 9 more workshops scheduled for this season, 3 of which are Advanced *E. coli* workshops. The program has distributed 17 equipment packages to a variety of schools, non-profit, and government organizations. Loaner equipment trunks located around the state have seen an increase in use during 2015; with a couple of locations loaning out two trunks at a time.

The [Hoosier Riverwatch Volunteer Stream Monitoring Internet Database](#) was developed when the HRW program began at the Indiana Department of Natural Resources in the summer of 2000. Indiana volunteer stream monitoring groups enter data collected during habitat, chemical, and biological sampling into this statewide database. Only volunteers who have completed a HRW training workshop may enter data. Volunteers and the general public can view and download all stream data entered into the database by HRW volunteers. This provides a unique opportunity for volunteers to share data, not only with one another, but also with anyone interested in the quality of Indiana's rivers and streams. Approximately 745 data records were entered into the online database by volunteers this year.

The HRW database framework has not been updated since it was developed in 2000. In FFY 2014, IDEM allocated \$319 funds to upgrade the database and make it more user friendly. The proposed project is a large overhaul of the HRW data entry website with the future goal to have infrastructure based on PHP (Hypertext Preprocessor) instead of ASP (Active Server Page); allow more flexibility for users to enter data easily on tablets; allow the general public an easier time gathering information from the website; and allow users' data to be uploaded to IDEM's Assessment Information Management System (AIMS). The project is on track to be completed by the end of August this year. The mapping functions, which failed midway through the contract, will be repaired with an extended contract and additional funds. The mapping tools are slated to be fully functional again by the end of the year 2015.

Indiana Clean Lakes Program

The School of Public and Environmental Affairs (SPEA) at Indiana University (IU) has been working with IDEM through \$319 funds to administer the Indiana Clean Lakes Program (CLP) since 1989. The Indiana CLP is a comprehensive, statewide public lake management program that includes public information and education, technical assistance, volunteer lake monitoring, and lake water quality assessment. Indiana has over 1,400 lakes, reservoirs, and ponds; many of which are under pressure from human activities like poorly managed agriculture, suburbanization of lakeshores, boating impacts, and septic system discharges. These activities can result in excessive nutrient concentrations reaching lakes which can lead to accelerated eutrophication and related undesirable effects including nuisance algae, excessive plant growth, murky water, odor, and fish kills.

Indiana's CLP, coordinated by IU-SPEA staff and students, includes the following components:

- Annual sampling of lakes and reservoirs;
- Training and support of a corps of volunteer lake monitors;
- Education and outreach through the production and distribution of the quarterly newsletter, *Water Column*; maintenance of the [Indiana Clean Lakes Program website](#); preparation of brochures and fact sheets; and participation in the annual Indiana Lake Management Conference; and
- Providing technical assistance and expertise on lake-related issues.

IU-SPEA expanded the Volunteer Monitoring Program in 2012 to include aquatic invasive species (AIS) monitoring. This AIS program will help the state with spread prevention and early detection. Zebra mussels were added to the program for monitoring and reporting starting in 2014. The program also includes multiple workshops each year to build the understanding of important zones of the lake that provide essential habitat and ecosystem services for the lake. Volunteers that participate in the workshops and expand their monitoring efforts become even better lake stewards. This program has been very well received and has improved with each workshop.

IU-SPEA continues to administer the CLP with two \$319 grants; one ends in January 2016, and one continues through January 2019.

Section 314 of the CWA charges IDEM with responsibility for assessing and reporting the trophic status and trend in trophic condition of Indiana's public lakes. The State of Indiana began assessment of lake nutrient levels and effects in the early 1970s. Continued monitoring is necessary to:

- Report the status of lake eutrophication levels to the U.S. EPA in the State's Integrated Water Quality Monitoring and Assessment Reports and Clean Water Act Section 303(d) listing of impaired waterbodies;
- Determine and track trends in eutrophication levels of lakes and reservoirs to inform restoration priorities and activities;
- Provide data needed to support development of nutrient water quality criteria, as required by U.S. EPA; and
- Provide data needed to determine if lakes and reservoirs are meeting water quality criteria and supporting the beneficial uses designated in Indiana's water quality standards.

Over the years, the Indiana CLP has continually provided IDEM a wealth of data for its CWA Sections 314 and 305(b) assessments and the development of its 303(d) List of Impaired Waters, which identifies waterbodies in need of restoration. These data are not only used to make waterbody-specific assessment and listing decisions, but the data set as a whole provided the foundation for the development of IDEM's assessment methodology for lakes and reservoirs.

IDEM is currently evaluating Indiana CLP data for the development of its methods to assess drinking water use support for those lakes and reservoirs that serve as a public water supply. This work is ongoing.

The Indiana CLP data, collected over more than three decades, have also been analyzed extensively by IDEM for the purposes of developing numeric nutrient water quality criteria for lake and reservoirs. Although this work continues, the data set provided by the program and IDEM's analyses have helped inform the Agency's current approach to reducing nutrient loading to Indiana lakes and reservoirs.

Monitoring for the National Water Quality Initiative

IDEM is currently working on a Joint Agreement with USGS for a monitoring project in the School Branch watershed, part of the Eagle Creek watershed (HUC 051202011108), in Hendricks County, Indiana. This watershed is the focus of a collaborative, public-private partnership tied to the national initiative for agricultural conservation cropping systems (see [National Water Quality Initiative](#) discussed previously). Using \$319 grant funds, the USGS will investigate three reaches of School Branch to determine if differences in physical, chemical, and biological indicators of stream water quality and quantity are related to long-term agricultural conservation cropping systems in the watershed. USGS will collect and interpret scientific data about water quality and water quantity in the School Branch watershed for the first three 3 years of a 6-year study. The USGS will operate three monitoring stations to continuously measure stream discharge. Real-time water-quality sensors and representative sampling will be used to measure continuous and synoptic concentrations and loads of nitrogen, phosphorus, and suspended sediment in stream water at these stations. Continuous groundwater levels and synoptic groundwater quality will also be measured. Chemical indicators of water quality and hydrologic data will be used to understand the sources and transport of nitrogen, phosphorus, and sediment in the watershed. Biological inventories will be used as additional indicators of water quality. Data from the study will be communicated by the USGS through internet webpages, presentations, and publications. IDEM began monitoring two fixed station sites on School Branch monthly in April 2014.

External Monitoring and the External Data Framework

IDEM recognizes that numerous universities, municipalities, watershed groups and grassroots organizations throughout the state participate in water monitoring activities. There are also regulated facilities that conduct monitoring above and beyond their permit requirements. Section 303(d) of the CWA requires that states consider all existing and readily available water quality data and related information in developing their 303(d) List of Impaired Waters. IDEM is required to actively solicit this information from external organizations for potential use in its 305(b) water quality assessments. Water quality data and information received from external organizations are reviewed for their usability in making assessments.

In 2015, OWQ began implementation of the External Data Framework (EDF) to provide a systematic, transparent and voluntary process for external organizations to submit their water quality data for consideration in various OWQ programs. The EDF describes OWQ policy regarding the agency use of external data, the guidelines for submitting data and the technical assistance necessary to facilitate greater collaboration between OWQ and external parties.

The [EDF website](#) is now active and available to the public. The website provides general information on the EDF along with a frequently asked questions (FAQ) page, data solicitation schedules and timelines, and a technical assistance page. OWQ has also developed a number of presentations and other outreach materials to promote participation in the EDF. The website offers two guidance documents: The *General Guidance for the Office of Water Quality External Data Framework*, which provides an overview of the EDF and addresses some of the more common questions regarding its structure, policies and participation; and the *Technical Guidance for the Office of Water Quality External Data Framework*, which provides more specific information regarding the requirements and recommendations of the EDF that external organizations can use to develop their monitoring plans, improve the quality of the data they collect, and determine whether data sets they obtain from others are suitable for use in their projects.

OWQ's EDF website also includes a page that describes three options for data submittal through OWQ's Secondary Data Portal. All participants in the EDF will enter the system through a single Secondary Data Portal where they may select to 1) enter their data online via user-friendly forms into a database that will produce a Microsoft (MS) Excel file formatted for upload into OWQ's Assessment Information Management System (AIMS) database, 2) use a MS Excel template provided by OWQ that can be directly upload into AIMS, or 3) request the development of an electronic data interchange that will automatically feed their data into OWQ's AIMS database. Once data are in the AIMS database, they will be reviewed and ranked based on their data quality and made available to OWQ staff for use in their programs and by request to the public.

Data may be submitted to the EDF at any time for consideration by the OWQ for potential use in its programs. OWQ programs can access data submitted through the EDF at different times depending on their varying needs. Two OWQ programs – the Integrated Reporting and TMDL Programs have more specific timelines in which they review the data submitted through the EDF. Regardless of when they are submitted, all data sets are reviewed by OWQ and ranked for their potential use by OWQ programs. These data and their associated quality assurance information can be accessed by other programs within IDEM or the public by request to the Secondary Data Coordinator.

The technical assistance page on the website will eventually provide the content developed in 2013 with CWA Supplemental 106 funds to help EDF participants design their monitoring projects and guide them through the development of a QAPP to document the quality of the data they collect. As part of this project, the contractor provided a matrix to help IDEM choose the best platforms and software to use in delivering content to participants in a cost-effective way. IDEM has not determined yet which platform to use for this purpose. OWQ anticipates that the technical assistance component of the EDF will evolve continually over time as EDF participants' needs and new ways to meet them are identified. OWQ's goal is to make the content described above available online in 2016.

In 2014, OWQ hired a coordinator to help implement the EDF by promoting participation through various outreach activities around the state, to provide a single point of contact to help guide current

and prospective participants, and to identify and work with those participants who, with some individualized assistance from OWQ might be able to improve the quality of their data such that OWQ could use it in CWA Section 305(b) water quality assessment and Section 303(d) listing decisions.

Current Assessment of Indiana's Surface Waters

After IDEM completes an assessment of the data collected within a given basin, waters that do not fully support one or more of their designated uses are placed on [Indiana's 303\(d\) List of Impaired Waters](#). This list is developed every two years as part of the state's Integrated Water Monitoring and Assessment Report. As of the 2014 [Integrated Water Quality Monitoring and Assessment Report](#) that IDEM submitted to U.S. EPA on April 1, 2014, Indiana has monitored 58%³ of its streams to determine whether they are capable of supporting a well-balanced warm water aquatic community. Of the streams monitored, 71% were supporting their designated aquatic life use, and 29% were found to be impaired. Indiana has monitored 47%³ of its streams for recreational uses. Of the streams monitored, 27% were found to support full-body contact recreational uses, while 73% were found to be impaired.

The sources of water pollution in Indiana are location dependent and involve both point and nonpoint sources. Many of the problems caused by point source pollution have been and continue to be addressed through regulatory programs such as the National Pollutant Discharge Elimination System permit program. Reducing NPS pollution requires a multi-faceted approach including education and outreach, watershed planning, and implementation of best management practices to restore waterbodies identified on Indiana's 303(d) List of Impaired Waters.

³ The number of miles monitored has decreased as a function of IDEM's "resetting the clock" with regard to the values we report for the total number of stream miles in the state. This value has and continues to fluctuate as a function of our reach indexing work. For the next State of the Environment Report, we have determined that at high resolution, the correct total miles for the state will be 63,130. This number is larger than those we have used in past reports. Using this number in our calculations of total miles assessed has the effect of reducing that number.

GOAL 3: DEVELOP AND CONDUCT A STRATEGIC OUTREACH AND EDUCATION PROGRAM

There is a huge need to provide outreach and education to citizens of the state to raise awareness of NPS issues. Many citizens still don't have the basic knowledge or understanding of NPS pollution, living in a watershed, or behaviors that lead to water quality impairments. Without this understanding, they are unlikely to change their behavior or support NPS reduction efforts. The opportunity to work with partners on unified messaging regarding NPS pollution is vast. IDEM realizes that any NPS messaging campaign undertaken by the agency should be consistent with partners across the state.

In the past year, the NPS Program has coordinated with partners on creating statewide educational messages on septic systems, hydromodification, and sediment and nutrient issues in the state, and promoting success stories for work done to remediate NPS pollution from these challenging sources. Discussions to date have been with the Indiana State Department of Health (ISDH) and Rural Wastewater Task Force on septic systems; IDNR and the Indiana Silver Jackets on dam removal and floodplain management; Purdue University on how to enroll more County Surveyors into the Indiana Watershed Leadership Academy; IDEM Ground Water Section and the Alliance for Indiana Rural Water on nutrient and sediment concerns in drinking water; and the IDEM Wetland program, consultants and IDNR on updates to the Indiana Wetland Conservation Plan and the upcoming Indiana In-Lieu Fee Program for stream and wetland mitigation.

IDEM's NPS Program continues to update its website as a means to educate citizens on NPS pollution; provide grantees with information and guidance to successfully complete their NPS grant projects; share information about NPS grant projects and their successes; and communicate with stakeholders and partners on NPS efforts. IDEM has also continued to provide technical and/or financial support to education/outreach and training initiatives such as the Indiana Watershed Leadership Academy (IWLA) sponsored by Purdue University, the ICP's Training and Certification Program, and citizen monitoring training through Hoosier Riverwatch and the Indiana Clean Lakes Program. IDEM NPS staff continue to engage interested groups and communities, through direct contacts, conference attendance, involvement in statewide and regional committees, and webinar and other training opportunities. A full accounting of progress made this year toward the objectives of Goal 3 in the State NPS Management Plan can be found in Appendix A.

Watershed Specialists

The Watershed Specialists work with watershed-based efforts throughout the state, providing financial, organizational and technical assistance to local watershed groups, while also continuing to serve as grant Project Managers. Key accomplishments for FFY 2015 are:

- Assisted approximately 71 active and developing watershed projects, 48 of which were (at some time) Section 319/205j grant funded.
- Participated in the planning and conducting of the 2015 IASWCD Annual Conference, including moderating and presenting for several sessions. Planning has begun for the 2016 IASWCD Conference, which will include a presentation by IDEM on developing a watershed management plan without the use of §319 funds.

- Assisted Purdue University with the Indiana Watershed Leadership Academy by participating in its steering committee, meeting the participants and explaining the Watershed Specialists' role, reviewing 14 participant assignments and providing feedback to participants, and attending their graduation to evaluate their class projects presented that day.
- Worked with others in the Watershed Assessment and Planning Branch to develop watershed characterization studies and SP-12/WQ-10 targeted monitoring sites.
- Worked with other agencies in the ICP to continue developing a Training and Certification program for partner employees, including training in the design and implementation of best management practices for water quality improvement and a possible watershed coordinator certification program.
- Worked with the IDNR Lake Michigan Coastal Program, NPS Coordinator to address all outstanding elements of the LMCP's Coastal NPS Management Plan.
- Worked closely with local groups and agency counterparts in Ohio and Michigan to develop watershed management plans for multi-state watersheds that meet checklists for all states.
- Continued to participate in the ICP's Pathway to Water Quality advisory committee to improve this Indiana State Fair exhibit that reaches tens of thousands of Hoosiers each year. Also staffed the exhibit during the State Fair.
- All NPS and TMDL staff participated in coordination meetings for several objectives under the State NPS Management Plan and 303d vision, including the updates to the Indiana Wetlands Conservation Plan, SRF NPS loans for WMP action items, 303d/NPS priority revisions, ISDH onsite wastewater systems, and IDEM Ground Water source water protection.
- Coordinated actions between the baseline/TMDL project staff and the watershed group.
- Recommended additional watersheds to NRCS for consideration in NWQI and MRBI decision-making.
- Coordinated with local group and EPA to establish a phosphorus-risk reduction pilot project in Indiana. Provided input on National Fish and Wildlife Foundation applications to the Sustain Our Great Lakes and Chi-Cal Rivers Fund programs.
- Participated in internal meetings for the development of new assessment methodologies.

Indiana Watershed Leadership Academy

IDEM is continuing to partner with Purdue University using §319 funds to conduct the [Indiana Watershed Leadership Program](#) to meet the needs of watershed coordinators, agency staff, and others that want to become more effective watershed leaders. Leading the development of a scientifically-sound watershed management plan that actively involves, engages, and is supported by the community requires people who have broad skills, and know how to employ diverse tools and strategies related to watershed management.

In the past ten years, 264 people have participated in the Academy, through which they have learned skills in organization and communication, watershed technology, geographic information systems, policy, watershed science, and leadership. Thirty-one participants attended the IWLA in 2015.

The IDEM NPS program participates in the IWLA in several ways. The Senior Watershed Planner sits on the steering committee for the Academy. In 2015, the Senior Watershed Planner assisted Purdue University with brainstorming potential sources of funding (other than §319) to continue the Academy.

Staff from the NPS program reviewed fourteen student assignments and provided feedback. NPS staff also attended one face-to-face session as a group to introduce IDEM's NPS program (particularly the Watershed Specialists) and network with potential new contacts. Watershed Specialists and the Senior Watershed Planner attended graduation and facilitated a small group activity to discuss how to make Academy projects useful to other watershed leaders in the state.

Indiana Conservation Partnership Training and Certification Program

Since September 2009, IDEM has participated with other members of the ICP in developing a Training and Certification Program (TCP) to meet staff training and certification needs across the Partnership. The ICP TCP operates as a volunteer planning team, utilizing monies provided by the Indiana State Soil Conservation Board to continue high-quality trainings in the state. In FFY 2015, the ICP TCP held the following trainings:

- November 2014- Conservation Selling Skills, 3 workshops, 90 attendees
- November 2014- Region V webinar- 61 log-ins, plus others could have watched afterwards
- December 2014- Advanced Nutrient Management Course- 21 employees
- April 2015- two forestry webinars- 57 log ins, plus others have watched afterwards
- May 2015- hands on invasive species control and educational learning session at the SW NRCS Area Meeting
- July 2015- hands on tree and shrub ID course in southern IN- 5 attendees

In addition, there is a wetlands training and a hands-on tree and shrub ID course in northern IN scheduled for the fall of 2015.

A Partnership-wide survey was conducted in April 2011 to determine training needs across the partnership. This original survey was updated and redistributed in 2014. These surveys will continue to guide the ICP's Training and Certification Program.

Nonpoint Source Reduction Efforts Recognized

Individuals and watershed groups in Indiana work hard to improve water quality in their watersheds and educate others about NPS pollution. It takes the efforts of many people, many of them volunteers, to achieve the goals of the group and their watershed management plan. Most of the time, these efforts go unrecognized. Sometimes, however, an individual or a group will receive recognition for their efforts and achievements. Recognizing these people not only acknowledges the importance of their work and a job well done, it also educates others about NPS and watershed issues and hopefully encourages them to help make a difference in their watershed. This year, several groups were recognized by various organizations for their efforts at reducing NPS pollution. The activities were accomplished with the help of \$319 grant funds and the groups' many partners and volunteers. IDEM also recognizes these groups for their work in education/outreach, BMP implementation, and leadership in reducing NPS pollution in their watersheds.

- **Wabash River Enhancement Corporation in partnership with Purdue Water Community** received a **2014 Governor's Awards for Environmental Excellence** for Outreach and Education. To reduce negative impacts to the Wabash River, staff from the Wabash River Enhancement Corporation (WREC) and Purdue University worked together to educate college students, high

school students and area landowners about positive practices and encourage action to reduce negative impacts. Known as TippEcoNow, the public awareness campaign enlisted the help of dedicated volunteers who spent thousands of hours actively promoting conservation, storm water pollution prevention, green building solutions, alternative energy ideas, and lawn maintenance tips. A comprehensive website serves as a resource for individuals who want to learn more about projects for homeowners, receive news and updates about local events and programs, and even apply for financial assistance with green roof and storm water projects. This group also received a **North American Lake Management Society Technical Merit Award** for volunteer monitoring for the Wabash River Watershed Sampling Blitz. See “Project Highlights” in the [Section 319 Grant Program](#) Section of this report for more information about this project.

- **Tippecanoe Watershed Foundation** received a **2015 Indiana Lake Management Society award for Outstanding Implementation Project**. The TWF implemented forty-four conservation projects in the Upper Tippecanoe watershed over the past two years. These projects included cropland planted to hay, tree planting, bioswales, wetland restoration, gully stabilization, critical area planting, livestock fencing, water and sediment control basins, no-till planting, roof runoff management, grassed waterways, filter strips, cover crop planting, and advanced nutrient & pest management. See [Appendix D](#), FFY 2010 for more information on the Upper Tippecanoe River-Grassy Creek Implementation project.
- **Manchester University Environmental Studies Program** received a **2015 Indiana Water Resources Association Outstanding Achievement Award for an Academic Institution** for leadership in water quality and habitat improvement in the Eel River Watershed. See [IDEM: Summary of Current 319\(h\) Grant Projects](#), for more information on this FFY 2012 Middle Eel Watershed Initiative project.

GOAL 4: IMPROVE INDIANA’S WATER QUALITY, INCLUDING SURFACE AND GROUND WATER, BY REDUCING NONPOINT SOURCE POLLUTANTS SUCH AS NUTRIENTS, SEDIMENT, AND BACTERIA; RESTORING AQUATIC HABITATS; AND ESTABLISHING FLOW REGIMES THAT MIMIC NATURAL CONDITIONS

The heart of Indiana’s NPS Program is its effort to restore waterbodies polluted by NPS pollution. A primary focus of IDEM’s NPS Program is on-the-ground work to reduce NPS pollution and improve water quality. The Watershed Planning and Restoration Section (WPRS) administers two federal pass-through grant programs aimed at improving water quality in the state: Section 319(h) and Section 205(j). Funding from these grants is predominantly used for the development and implementation of comprehensive WMPs that guide efforts to restore water quality on waterways impaired for NPS pollution. This has resulted in measurable improvements, especially in terms of estimated pollutant load reductions and stakeholder involvement. More work remains to be done, however, to fully restore and protect water quality. The WPRS also administers the TMDL program and the new 303(d) Vision, and efforts are underway to revisit and integrate both the NPS and TMDL program priorities. More information about the §319 and §205(j) grant programs and the TMDL program may be found on [IDEM’s website](#). A full accounting of progress made this year toward the objectives of Goal 4 in the State NPS Management Plan can be found in Appendix A.

Section 319 Grant Program

The §319 Grant Program is a major resource for reducing NPS pollution in Indiana. This fiscal year Indiana anticipates receiving \$3,373,700 in §319 funds, which will be used for NPS Program support (technical staff and administration) and nine NPS projects. (The FFY 2015 §319 funds, as well as other federal grant funds, have been delayed this year due to the rescission and subsequent revision of budget allocations). As a result of our non-federal partnerships discussed under Goal 1, the Maintenance of Effort (MOE) level requirement under §319(h)(9) has been met this year.

Section 319 grant funds require a 40% non-federal match. Match for NPS projects is provided by the project sponsor and its partners. Match for IDEM’s staffing and program support activities is provided by the Indiana SRF Loan Programs administered by the Indiana Finance Authority. The SRF Loan Programs provide low-interest loans, funded by federal capitalization grants, to Indiana communities for projects that improve wastewater and drinking water infrastructure, including NPS projects that are tied to a wastewater loan. The federal funds loaned by the state and subsequently repaid by the borrower to the state are considered state funds. These funds are “recycled” to provide loans for other projects, and can be used as match for the NPS Program. Most of the SRF projects used for NPS Program match involve extending sewers to areas with failing and aging septic systems. Removing these septic systems eliminates NPS pollutants including pathogens and nutrients. Since extending sewers is considered a point source activity, only the homeowners’ cost to decommission the septic tank and hook up to the lateral is documented as match.

Section 319 Funding Priorities

EPA recently started placing an even stronger emphasis on using §319 funds to restore NPS impaired waters through implementation of watershed-based (i.e., watershed management) plans. States must now use at least 50% of their annual appropriation of §319 funds (watershed project funds) to

implement WMPs in watersheds containing one or more impaired waters. States may use a limited amount of these funds to protect identified unimpaired/high quality waters if doing so is identified as a priority in the updated State NPS Management Plan. Protecting sensitive, vulnerable, and high quality waters of the state is Goal 5 of Indiana's updated State NPS Management Plan.

Each year IDEM solicits applications for projects that will reduce NPS pollution in Indiana's rivers, streams and lakes and meet our NPS Program goals, including focusing more of the \$319 funds on impaired waters. Below are the four priorities IDEM established for FFY 2015 funds.

1. In order to continue to make measurable improvements in water quality in Indiana, and to prioritize watersheds for actions focused on reducing nutrient loading in coordination with the Indiana Conservation Partnership, IDEM's NPS Program is prioritizing funding on watershed management plan implementation projects addressing nutrients in the following Conservation Reserve Enhancement Program (CREP) watersheds:
 - East Fork White River Basin (HUCs 05120204-Driftwood, 05-Flatrock Haw, 06-Upper East Fork White, 07-Muscatatuck, 08-Lower East Fork White)
 - Wabash River Basin (HUCs 05120101-Upper Wabash, 02-Salamonie, 03-Mississinewa, 04-Upper Eel, 05-Middle Wabash-Deer, 06-Tippecanoe, 07-Wildcat, 08-Middle Wabash-Little Vermillion, 09-Vermillion, 10-Sugar, 11-Middle Wabash-Busseron, 13-Lower Wabash)
2. Watershed planning and/or implementation projects in watersheds with one or more impaired waterbodies that have an approved TMDL.
3. Watershed planning and/or implementation projects in watersheds that include waterbodies in Category 5A of Indiana's Draft 2012 Integrated Water Monitoring and Assessment Report.
4. Implementation of watershed management plans that have met, or will soon meet, IDEM's Watershed Management Plan 2003 or 2009 Checklist.

Section 319 Grant Projects

Grant applications are submitted each year by project sponsors, reviewed by a committee, and selected for funding based on the NPS Program's priorities and the quality of the proposal and project. Projects are administered through grant agreements that spell out the tasks, schedule and budget for the project. Projects are normally two to three years long and work to reduce NPS pollution and improve water quality in the watershed through development of watershed management plans that meet [IDEM's WMP Checklist](#) (and EPA's required nine elements); implementation of approved WMPs via a cost-share program to implement BMPs in critical areas that address the water quality concerns outlined in the WMP; and education and outreach designed to bring about behavioral changes and encourage BMP implementation. IDEM Project Managers work closely with the project sponsors to help ensure that the project runs smoothly and the tasks of the grant agreement are fulfilled. Site visits are conducted at least quarterly to touch base with the project, provide guidance and technical assistance as needed, tour the watersheds and see the BMP installations, and work with the grantee on any issues that arise to ensure a successful project close-out.

Seven of the nine projects funded this year address one or more of the NPS Program priorities. These projects will be developing or implementing WMPs in watersheds with impaired waterbodies; with three of these projects also addressing nutrients in the CREP watersheds (priority 1 above). The other two projects are assessment and education projects. Currently, there are thirty-nine open or pending \$319 projects, of which twenty-eight are implementing watershed management plans and installing

BMPs in critical areas of the watershed. These projects are doing “on-the-ground” work in their watersheds (see Table 2) that leads to NPS pollutant load reductions (as shown in Table 3), and improved water quality. A list of all §319 projects open or pending during this fiscal year is located in Appendix B. A map showing the watersheds where water quality improvement projects are currently underway, ready to begin, or recently completed in the state (2010-2015) is located in Appendix C.

Specific project information for all §319 projects is entered and maintained in EPA’s Grant Reporting and Tracking System (GRTS) database. Projects used as match for the NPS Program are also entered here. GRTS enables EPA and states to demonstrate the accomplishments achieved with the use of 319(h) grant funds. The data is also used by EPA to respond to inquiries received from Congressional committees, the White House, and various constituent groups. Project information in GRTS includes the project schedule, budget, description, type of BMPs implemented, location of BMPs, estimated pollutant load reductions, and progress reports. Final reports and deliverables for all projects are also entered into GRTS. The public may view this information on the [GRTS Home Page](#). Section 319 projects closed this fiscal year are summarized in Appendix D, along with a description of compliance with the Programmatic §319 Grant Conditions.

The NPS Program is continually working to update and improve guidance for grantees to help them as they work towards implementing their NPS grant project. Most information needed can be found on the IDEM web site; much of it in the [NPS Grants Compendium](#), which is comprised of all the guidance, instructions and requirements for Section 319/205(j) grantees. This year the NPS Program finalized a guidance document to help grantees with the process of [updating](#) a watershed management plan, and revised the Section 319 Eligible NRCS FOTG Practices document.

Project Highlights

Two grant projects that closed this fiscal year are highlighted here as examples of successful NPS projects working to improve water quality through watershed planning, implementation of BMPs, and education/outreach. The information below was taken primarily from the project’s final report.

Region of the Great Bend of the Wabash River Watershed Implementation Project

In May 2011, the Wabash River Enhancement Corporation (WREC) completed the *Region of the Great Bend of the Wabash River Watershed Management Plan* (WMP) through a §319 grant with IDEM. WREC and its partners were highlighted in Indiana’s FFY 2011 NPS Annual Report as an example



of a successful NPS project working to improve water quality through watershed planning. This three year implementation project, which started in February 2012, represents the first phase of water quality improvement through on-the-ground conservation in the Region of the Great Bend of the Wabash River watershed, and is highlighted as an example of a successful first round WMP implementation project.

The Wabash River rises in western Ohio and flows 475 miles to the west and south through northern Indiana to its confluence with the Ohio River below Mount Vernon, Indiana in the southwest corner of the state. The river occupies the heartland of Indiana draining two-thirds of the 92 counties (over 32,000 square miles) collecting runoff from agricultural lands, cities and towns in Ohio, Indiana, and Illinois. The Region of the Great Bend of the Wabash River watershed is composed of three 10-digit Hydrologic Unit Code (HUC) watersheds in the Wabash River watershed including Wea Creek (HUC 0512010801), Burnett Creek-Wabash River (HUC 0512010802), and Kickapoo Creek-Wabash River (HUC 0512010805),

and covers portions of Benton, Fountain, Montgomery, Tippecanoe, Warren, and White Counties in Indiana. The Region of the Great Bend of the Wabash River watershed encompasses 306,452 acres or 478 square miles and includes a majority of the cities of Lafayette, West Lafayette, and Battle Ground; all of Shadeland, Otterbein, and Linden; and portions of Attica, Dayton, New Richmond, and Clarks Hill.

The main goals of the project were to: 1) develop and promote a cost share program; 2) implement the cost share program; 3) continue the award winning education and outreach efforts; 4) continue the water quality monitoring program and implement a photomonitoring program aimed at showing change in water quality following implementation; and 5) complete social indicator surveys of rural and urban landowners.

Accomplishments

WREC and their partners promoted the cost-share program throughout the project term. Table 1 lists all of the water quality improvement projects implemented in the watershed from 2012-2014 using §319 and partner funds. Both agricultural and urban BMPs (see Figure 3) were installed. The WMP goals were scaled to the first three years of the five year goals to help determine project success, and as shown in Table 1, WREC and their partners met most of their goals.

Table 1 Practices Installed From 2012-2014 within The Region Of The Great Bend of The Wabash River Watershed Using Section 319 and Partner Funds.

Best Management Practice (BMP)	WREC Funded	Partner Funded	Total	Goal (3 years)	Goal Met
Rain Barrels (#)	822	139	961	300	Y
Rain Gardens (#)	49	26	75	45	Y
Pervious Pavement (Acres)	0.15	10.28	13.48	13.63	Y
Green Roof (#)	0	1	1	3	N
Urban Trees (#)	314	1,767	2,081	1,500	Y
Turf to Natives (Acres)	7.7	10	17.7	6.0	Y
Bioswale (#)	6	15	21	As needed	**
Stormwater Retrofits	2	*	2	As needed	**
Cover Crops (Acres)	8,479	15,278	23,757	2,100	Y
Two-Stage Ditch (#)	1	1	2	3	N
Bioreactor	4	0	4	Education	**
Grassed Waterway (Feet)	2,000	42,539	44,539	4,800	Y
No Till/Mulch Till (Acres)	0	7,853	7,853	1,500	Y
Floodplain Restoration (Acres)	0	642	642	300	Y
Conservation Buffer (Acres)	0	8,450	8,450	1,500	Y
Nutrient/Pest Management (Acres)	0	705	705	7,500	N
Conservation System (Acres)	0	*	*	900	*
Prescribed Grazing (Acres)	0	70	70	150	N
Soil Management Sampling (Acres)	0	*	*	12,000	*
Wetland Restoration (Acres)	0	317	317	300	Y
Livestock Restriction (Acres)	0	95	95	1.45	Y

*Not cataloged through cost-share funding programs.

****Practices were identified as important for use during implementation; however, target amounts were not assigned. Therefore, these goals cannot be identified as meeting or not meeting their scaled goal.**

These implementation efforts resulted in approximately 342,060 lb. less nitrogen, 117,490 lb. less phosphorus and 8,210 tons less sediment entering the Wabash River.



**Figure 3 Water Quality Improvement Projects Incorporated Into a Home Improvement Project
- Before and After Installation of a Rain Garden and Pervious Pavement**

WREC continued their comprehensive education and outreach program in the watershed throughout the project. Their award winning education program highlighted opportunities for urban landowners and agricultural producers to engage with the Wabash River and encouraged them to make small changes on behalf of the River. WREC was honored with a 2014 Governor's Award for Environmental Excellence in Education and Outreach, and by the North American Lake Management Society for Technical Merit in Volunteer Monitoring. Additionally, WREC staff was honored by the Indiana Water Resources Association and the Tippecanoe County Soil and Water Conservation District for their efforts to engage and educate Wabash River stakeholders (see Nonpoint Reduction Efforts Recognized).

Social indicator surveys were used to determine the knowledge, attitudes, awareness, opinions, and constraints of both urban and rural residents within the Region of the Great Bend of the Wabash River watershed and assess changes during the phase of the project. WREC's education, urban, and rural committee members worked with a group of Purdue University social scientists to update the existing survey to include specific education and outreach events and materials that occurred during the implementation phase of this project. A total of 325 agricultural producers responded to the survey and 278 urban residents responded. WREC's education and steering committees reviewed the social indicator data identifying key aspects that will help them tailor education programming in the next phase of education and outreach and implementation.

WREC continued their monitoring program which allowed them and their project partners to refine the paired watershed study dataset, learn more about the watershed, and provide volunteers with monitoring opportunities while laying a foundation by which changes in water quality can be observed following implementation of BMPs. Water chemistry sampling was conducted as part of the paired watershed monitoring program. Three tributary sites represent two pairs of test watersheds: one urban or urbanizing (Elliot Ditch) paired with the control watershed (Little Pine Creek) and one rural or agricultural (Little Wea Creek) paired with the control watershed (Little Pine Creek). The Wabash River upstream-downstream pair was designed to identify any observable impacts of Greater Lafayette on the Wabash River. Biological and habitat samples and volunteer monitoring occurred at 10 sites throughout the watershed. WREC used photomonitoring to document the status of installed practices, determine if practices were maintained as per landowner agreements and to highlight changes that may not yet be detectable from water quality monitoring data. Data collected as part of the monitoring program indicated that there are strong relationships between the control and treatment watersheds. This relationship suggests the ability to monitor a change in water quality following implementation within these three basins.

Funding/Partnerships

The project utilized \$799,740 in \$319 funds and provided over \$548,071 in match. WREC maintained several partnerships as part of the implementation process. The Cities of Lafayette and West Lafayette, Tippecanoe County, and Purdue University all sit on WREC's board of directors and are therefore, natural partners for all of WREC's activities. Specific partners included: Tippecanoe County Parks Department, Tippecanoe County Surveyor, Tippecanoe County SWCD/NRCS, Tippecanoe County Area Plan Commission, Purdue University Physical Facilities, Boiler Green Initiative, Boiler Volunteer Network, Purdue Sustainability Council, Purdue University's Living Laboratory, Indiana-American Water, Cargill, Alcoa, Eli Lilly/Evonik, Clear-Blue-Green Certified businesses, Greater Lafayette Chamber, New Chauncey Neighborhood Association, Centennial Neighborhood Association, Go Greener Commission, Hoosier Environmental Council, the Warren, Fountain, and Tippecanoe SWCD offices, Tippecanoe Partnership for Water Quality, and the Towns of Battle Ground and Attica. These relationships will be key in future activities occurring during cost-share program development and implementation.

Future Activities

The future success of the Region of the Great Bend of the Wabash River Watershed Implementation Project hinges on the ability to show change in water quality, and the continued interest of volunteers and stakeholders in implementing water quality improvement projects. In December 2013, WREC received a \$319 grant for \$637,907 for a 3 year project to continue the current activities of promoting

and implementing the cost-share program to implement BMPs that address water quality concerns outlined in the WMP, conducting water quality monitoring, and educating stakeholders about nonpoint source pollution issues. During this project WREC will conclude the paired watershed monitoring effort, complete data analysis, and develop a monitoring report and presentation that will provide general results of water quality monitoring, detailed paired watershed analysis, and provide information on how results can be utilized by other watershed groups throughout the state.

More Information

For more information about this project, visit <http://www.wabashriver.net/region-of-the-great-bend/>.

Hogan Creek Watershed Project

Hogan Creek flows from its headwaters in northeast Ripley County to its confluence with the Ohio River, just north of the town of Aurora. Several cities and towns are located within the watershed including: Moores Hill, Dillsboro, Manchester, Milan, and Sunman. The watershed is roughly 82,000 acres, with approximately 63,000 acres in Dearborn County and the remaining acreage in Ripley County. Approximately forty-seven percent of the watershed is agricultural land, fifty percent is woodland, two percent is urban land, and the remaining one percent is water.



The Hogan Creek Watershed Project started in 2005 through a Section 205(j) water quality planning grant to the Dearborn County SWCD to develop the Hogan Creek Watershed Management Plan. The project received its first 319 implementation grant in August 2008 for a 2 ½ year project. This project continued implementation of the Hogan Creek WMP, working to achieve the goals laid out in the plan.

Accomplishments

The Dearborn County SWCD conducted a comprehensive education and outreach program designed to bring about behavioral changes and encourage BMP implementation that leads to reduced nonpoint source pollution in the watershed. The activities included: field days and workshops highlighting the importance of BMPs such as pasture/hayland establishment and management, cover crops, conservation tillage, grazing/pasture management, and septic system management; brochures; new releases; classroom presentations; and an annual river sweep to engage stakeholders in the project and the importance of improving water quality. A cost-share program was developed and promoted to implement BMPs that address the water quality concerns outlined in the Hogan Creek WMP.

During this four year project, the cost-share program funded 36 landowners in Dearborn and Ripley Counties who installed the following BMPs:

43,570' of Fence	1 Stream Crossing
21.7 acres of Hay Plantings	252' of Access Roads
94,821 sq. ft. of HUAPs	230' Grassed Waterway
5,168' of Pipeline	6,903 sq. ft. of Mulch
19 Watering Facilities	1 Waste Storage Facility

1,488' of Underground Outlet	1 Riprap Pad
162' of Roof Runoff	1.6 acres of Tree Plantings
560' Animal Walkways	1 Trickle Flow Collector
767.5 acres of Cover Crops	

The load reductions achieved as a result of these practices totaled: 4,492 tons/year of sediment, 5,304 lbs. /year of phosphorus, and 11,576 lbs. /year of nitrogen.

The ultimate long-term goal of the project is to reach the goals set in the watershed management plan, which are:

- Reduce sediment loading by 1,000 tons,
- Reduce nutrient loading by 40%,
- Increase knowledge of potential harm from hazardous chemical loading,
- Reduce E. Coli loading to reach the EPA standard of 235 colonies/100 mL,
- Maintain normal temperature levels and
- Expand the number of recreational opportunities, including wildlife areas, within the watershed.

The BMPs installed using this grant's cost-share and the previous grant's cost share saved a total of 9,075 tons of sediment, 10,061 lbs. of phosphorus, and 19,029 lbs. of nitrogen from polluting Hogan Creek per year. The load reductions totals met 28% of the phosphorus reduction goal and 12% of the nitrogen reduction goal. The goal to reduce sediment loading by 1,000 tons is the only goal that the project has met and surpassed. After review, the committee believes that goal itself was set too low and was based on limited TSS water quality data. Even though the main sedimentation goal was met, several objectives and action items under the goal have not been met. While many livestock related BMPs have been implemented, based on the 2010-2011 IDEM water monitoring data, the E. coli goal in the WMP has not been met.

Funding/Partnerships

The project utilized \$360,000 in §319 funds and provided over \$248,187 in match. The project would not have been as successful as it was without its partnerships. Historic Hoosier Hills RC&D and Ripley County SWCD have been two major partners of the project. Historic Hoosier Hills RC&D assisted with administrative duties and outreach. Ripley County SWCD assisted with the outreach, education, and cost-share program efforts. The SWCD promoted the project through their newsletters, website, and Facebook page. They also partnered with the project to hold workshops and field days. The Natural Resource Conservation Service was a key partner for the project's cost-share program. NRCS personnel were utilized for speakers for some of the field days along with Purdue Extension, Dearborn County Health Department, IDNR, IDEM, and other local consultants. ORSANCO was a key partner for the Annual River Sweep Clean-up by assisting with advertising, outreach, and t-shirts.

Future Activities

The Dearborn County SWCD received another 319 grant to continue its efforts to reduce nutrients and *E. coli* in the watershed and meet the WMP goals. A cost-share program has been developed and is currently being implemented, focusing on complete conservation systems on both grazing and cropland acres. Education and outreach efforts are continuing to educate producers and watershed residents about the importance of BMP implementation and septic system care and maintenance.

More Information

For more information on this project, visit <http://www.dearborncountywatersheds.org/Hogan-Creek.html>.

Best Management Practices and Pollutant Load Reductions

Best management practices are structural, nonstructural and managerial techniques that are recognized to be the most effective and practical means to control NPS pollutants, yet are compatible with the productive use of the resource to which they are applied. BMPs are used in both urban and agricultural areas. A project that is implementing a WMP administers a cost-share program to help landowners implement needed BMPs in critical areas to reach the overall WMP goals. If the planning process was successful, landowners will be aware of the water quality problems in the watershed and the ways to reduce the NPS pollution and will be ready to participate in the cost-share program. When applicable and appropriate, IDEM encourages grantees to consider BMPs that will provide positive impacts to meet multiple objectives. For example, in the waters of the Coastal Zone, restoration activities undertaken with \$319 funds will also be in accordance with the CZARA Section 6217(g) measures. IDEM is currently modeling this “bigger bang for the buck” concept through its TMDL/NPS Program. TMDLs are being written on the TMDL-WMP template that allows watershed groups to incorporate TMDL data into their WMPs and streamline the watershed planning process. In addition, IDEM is encouraging a systems approach to implementing BMPs. During a project’s initial application and/or cost-share program development, IDEM encourages the project to work with landowners and prioritize cost-share recipients that implement a conservation cropping system (such as a nutrient management conservation system or a conservation cropping system for soil health and water quality) rather than a single BMP.

This FFY watershed groups continued working to implement WMPs and utilized over 1.4 million dollars to install BMPs in critical areas of Indiana’s watersheds. Table 2 shows BMPs implemented this FFY compared with the last two fiscal years. The number of acres of cover crops has continued to rise since FFY 2011, due in part to IDEM changing the cover crop policy to reduce the five year maintenance commitment to one year, as well as increased focus on this BMP within the agricultural community.

Table 2 BMPs Implemented in Indiana FFY 2012 - 2014

BMP	Approximate Number FFY 2013	Approximate Number FFY 2014	Approximate Number FFY 2015
Cover Crop (acres)	12,905	17,617	17,851
Denitrifying Bioreactor (each)	2	0	0
Fence (feet)	78,119	32,787	32,221
Grassed Waterway (feet)	75,473	46,974	18.9*
Heavy Use Area Protection (sq. feet)	71,044	100,387	159,042
Nutrient Management (acres)	2,382	4,042	6,794
Pasture and Hay Planting (acres)	379	753	374
Pest Management (acres)	2,631	6	0
Residue Management, No-Till (acres)	3,833	1,169	2,575
Streambank/Shoreline Protection (feet)	579	814	1,430
Tree and Shrub Establishment (acres)	-	87	91

Two Stage Ditch (feet)	10,038	10,240	0
Watering Facility (each)	12	8	21
Wetland Enhancement/Restoration (acres)	34	12	0
Porous Pavement (sq. feet)	1,150	7,140	0.25*
Rain Barrels (each)	42	28	4
Rain Gardens (sq. feet)	52,810	4,133	26,573
Septic System Removal (each)**	-	467	0

*Reported this year in acres

**Septic systems eliminated as a result of SRF project(s) used as match for the NPS Program.

Additional BMPs implemented this year include access road, filter strip, conservation cover, grassed swale, pipeline, residue management/mulch-till, riparian herbaceous cover, roof runoff structure, stream crossing, water and sediment control basin, and waste storage facility. Comprehensive Nutrient Management Plans were written to cover 776 acres. The number of BMPs implemented in a given year varies depending on many factors including the weather, the focus of current NPS projects' implementation efforts based on their watershed management plan, the change in focus and availability of other federal and state program grant funds, and changes in BMP promotion and recommendations in the agricultural community.

One important indicator of NPS program and project success is the quantity of pollutants that has been prevented from entering waterbodies as a result of BMPs implemented. Pollutant load reductions, in most cases, are estimated using the [Region 5 Load Estimation Model](#). This simple Excel model provides a general estimate of pollutant reductions (sediment, phosphorus, and nitrogen) at the source level from structural and agricultural field practices and urban BMPs. Reductions achieved through practices related to nutrients (not tied to sediment), bacteriological, and pesticide management are not captured through this estimation method. Another model or method for estimating these load reductions must be used. In addition to the Region 5 Model, the [Spreadsheet Tool for the Estimation of Pollutant Load \(STEPL\)](#) model also is available and is used by some groups in Indiana. This model calculates nutrient and sediment loads by land use type and aggregated by watershed. In a few cases, reporting pollutant load reductions may not be feasible because of the type of BMP installed.

Estimated load reduction data for each BMP implemented as a result of the project (including BMPs not funded with §319 funds and used as match) is submitted by the project sponsor with their invoice and entered by the IDEM Project Manager into an Access database at IDEM and the EPA GRTS database. Estimated load reductions vary depending on factors including the type of BMP implemented, the number of acres treated, land use, soil type, and in some cases, rainfall amounts. Urban BMPs generally provide lower estimated load reductions than agricultural BMPs.

Reported estimated load reductions for BMPs implemented this FFY compared with the last two years are shown in Table 3. All load reduction data was obtained from IDEM's Access database. Estimated load reductions for sediment, nitrogen and phosphorus continue to improve each year as more projects are implementing WMPs and putting more BMPs on the ground.

Table 3 Reported Estimated Load Reductions for BMPs Implemented FFY 2013-2015

Nonpoint Source Pollutant	Estimated Reduction FFY 2013	Estimated Reduction FFY 2014	Estimated Reduction FFY 2015
Sediment (tons/yr.)	54,507	56,938	79,100
Phosphorus (lbs. /yr.)	92,360	65,398	188,590
Nitrogen (lbs. /yr.)	170,376	175,956	191,588
Biological Oxygen Demand (lbs. /yr.)	5,143	38,819	273
Chemical Oxygen Demand (lbs. /yr.)	5,390	64	1,555
Ammonia (lbs. /yr.)*	-	3731	0
Suspended Solids (lbs. /yr.)	44,192	40,000	82,633
Pathogens/Coliform (CFU)*	-	1.55E+10	0
Lead (lbs. /yr.)	16	0	2
Zinc (lbs. /yr.)	21	0	4
Copper (lbs. /yr.)	1	0	0
TKN (lbs. / yr.)	-	-	256,197

*Estimated using a modified STEPL model and the OH Septic Load Reduction Spreadsheet

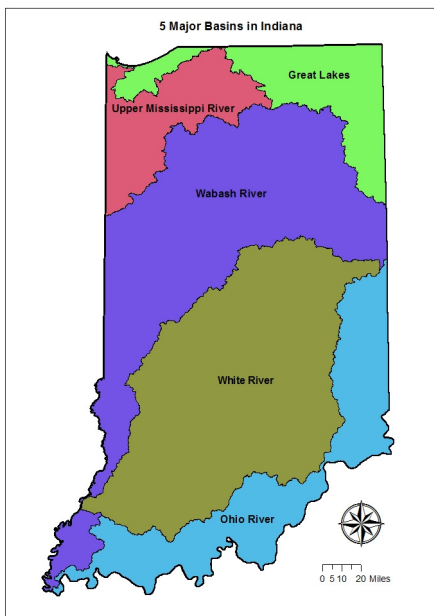
Cumulative total estimated load reductions reported in Indiana from §319 projects since FFY 2000 are shown in Table 4.

Table 4 Cumulative Total Estimated Load Reductions in Indiana

Nonpoint Source Pollutant	Total Estimated Reduction
Sediment (tons/yr.)	562,386
Phosphorus (lbs. /yr.)	935,351
Nitrogen (lbs. /yr.)	1,562,639

BMPs and Load Reductions in FFY 2015 by Major Basins

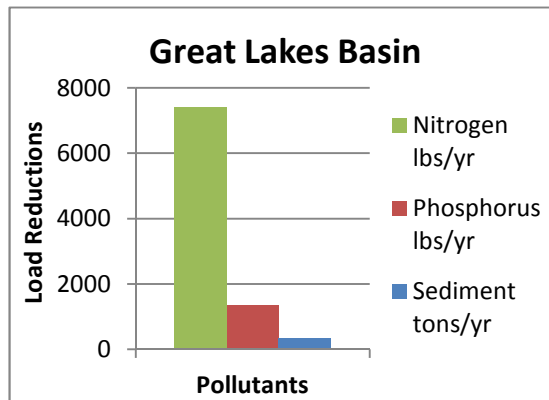
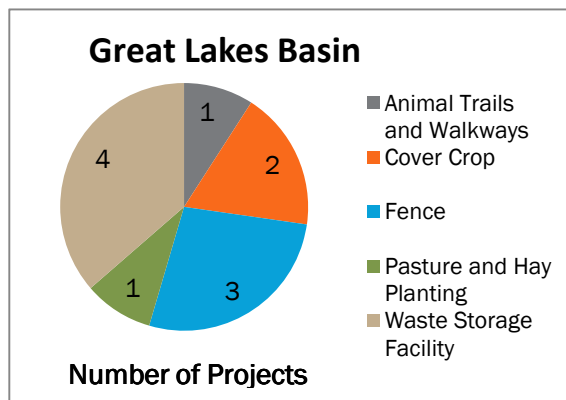
Figure 4 – Major Indiana Basins



In an effort to show work being done within the different basins of the state and to help target future resources, the load reductions achieved and the types of BMPs implemented have been broken down into the following five major basins as shown in Figure 4: Great Lakes, Upper Mississippi River, Wabash River, White River, and Ohio River. Almost 82 percent of Indiana (including the Wabash River and the White River) drains to the Ohio River and ultimately to the Mississippi River and Gulf of Mexico. Approximately 10 percent of Indiana drains to the Great Lakes (Lake Michigan and Lake Erie), and 8 percent drains to the Upper Mississippi River.

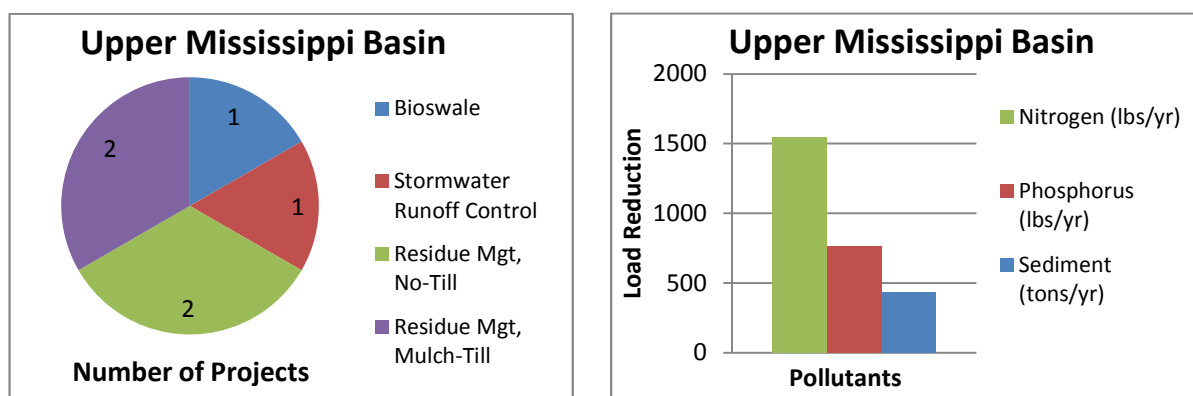
The following charts show the number of best management practices installed and the load reductions achieved in FFY 2015 in each of the five basins.

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes. Data Source: Indiana Geographic Information Office Library. Map Projection: UTM Zone 16 N - Map Datum: NAD83. Mapped By: J Wood, Office of Water Quality. Date: 08/006/2015



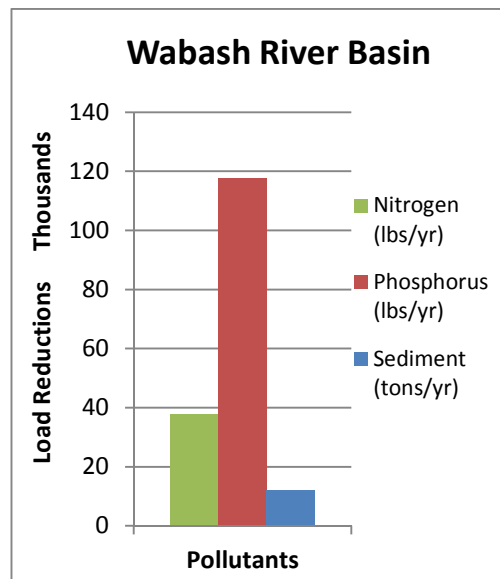
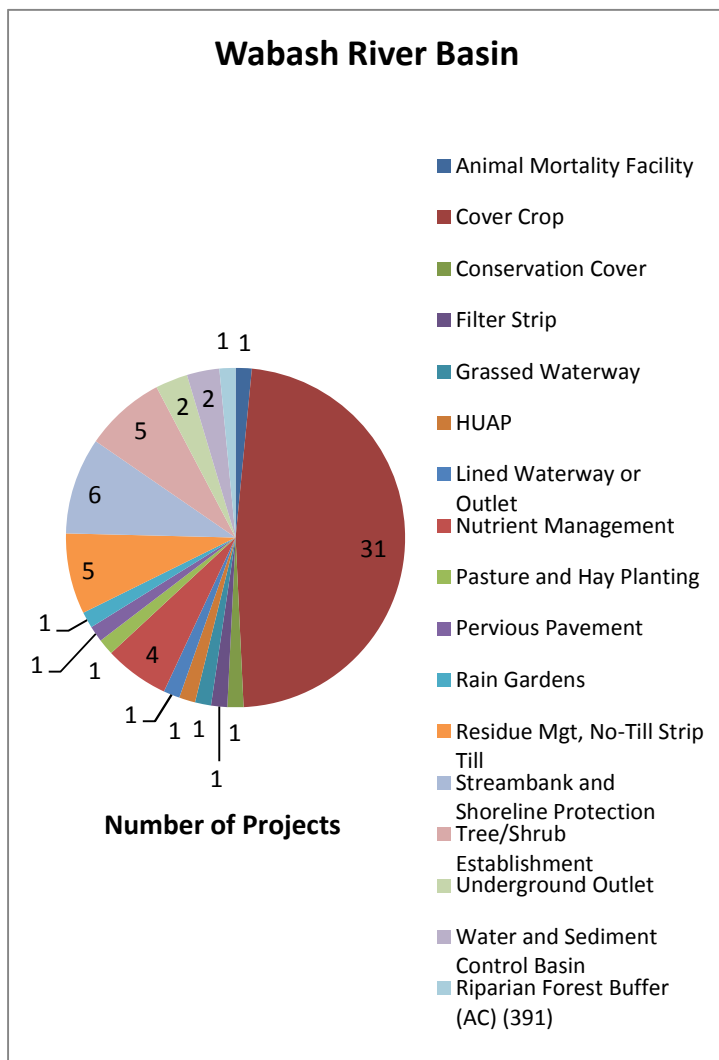
The BMPs and load reductions for the Great Lakes are the result of four projects working in these basins this fiscal year. As seen from the load reduction graphs, the BMPs implemented in this basin did a good job of reducing nitrogen runoff; largely from the four waste storage facilities installed. This reduction is important because the Great Lakes are sensitive to the effects of nutrients, which in excess can result in algal blooms.

Because of the recent problems resulting from large algal blooms in Lake Erie, phosphorus reduction to the lake has become a focus at the state and national level. Many efforts are currently underway to target harmful algal blooms and reduce the amount of phosphorus entering Lake Erie. To that end, U.S. EPA Region 5 recently allocated \$336,391 of \$319 funds to IDEM to initiate a Phosphorus Risk Reduction Pilot Project in the Upper Maumee River watershed in Indiana. IDEM is working with the Allen County Soil and Water Conservation District to develop the project, which is modeled after a portion of Ohio EPA's FFY 2011 GLRI project "Lake Erie Nutrient Reduction Demonstration Watershed", based on a modified Ohio NRCS Phosphorus Index scoring system. The project is expected to start in early 2016 and will work for three years to reduce phosphorus runoff from an estimated 3,500 acres of agricultural land within five 12-digit HUC watersheds in the Upper Maumee with practices such as filter strips, cover crops, riparian forested buffer, pasture/hay planting, constructed wetland, grassed waterway, nutrient management, residue management and drainage water management.



Two projects worked in the smaller Upper Mississippi River Basin this year. The load reductions achieved in this basin were primarily due to residue management practices. As a contributor to the Mississippi River watershed, Indiana is involved in the Gulf Hypoxia Task Force and the strategy for eliminating the annual dead zone in the Gulf of Mexico caused by a massive yearly algal bloom. The algal bloom is caused by excess nutrients coming into the Gulf from the Mississippi/Atchafalaya River Basin.

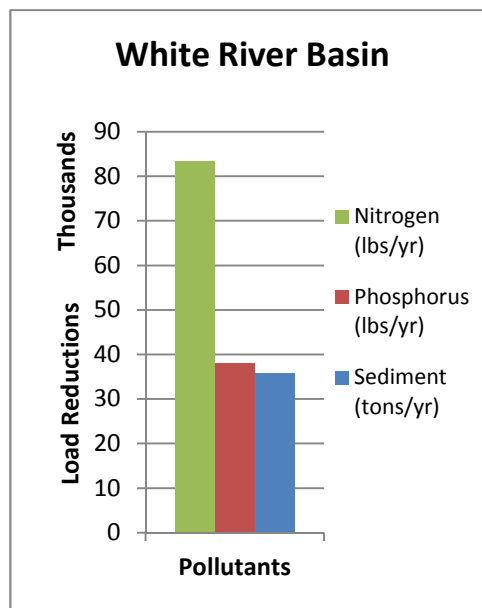
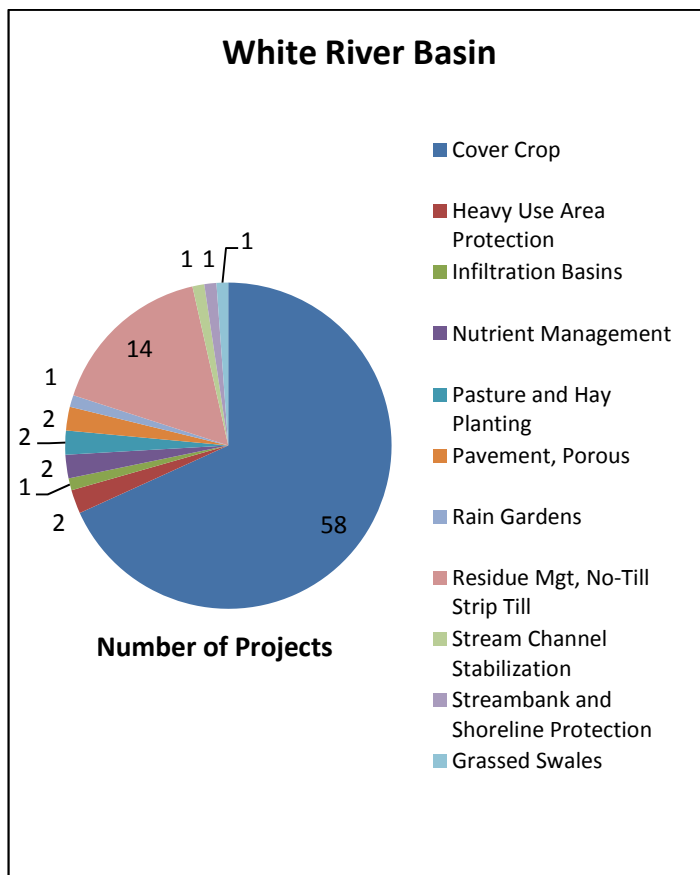
Seven projects working in the Wabash River Basin this year reduced nutrient loads to the river as shown above. Of particular note is the reduction of phosphorus by 117,807 lbs. /yr., primarily through the many acres of cover crops implemented and a few comprehensive nutrient management practices focusing on phosphorus reduction.



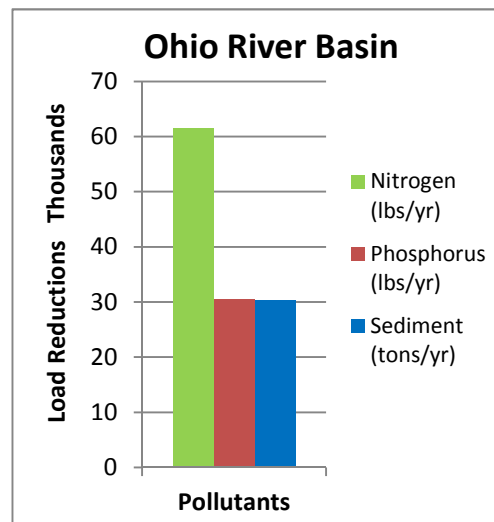
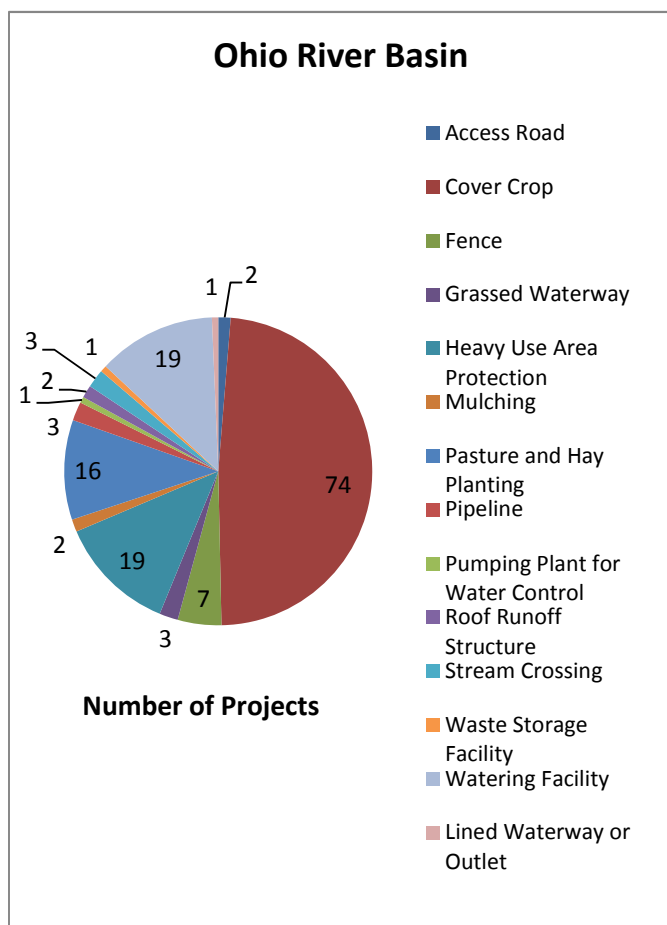
The Ohio River Valley Sanitation Commission (ORSANCO) recently completed an IDEM 205j-funded nutrient monitoring project in the Lower Wabash River. The final report states, in part, that the Ohio River is a major source of nutrients contributing to the hypoxic zone in the Gulf of Mexico. And previous studies have shown that the Wabash River is the largest contributor of nutrients to the Ohio River. The ORSANCO study found that “From January 2012 through December 2014 the Wabash River contributed 683,112 metric tons of nitrogen and 62,597 metric tons of phosphorus to the Ohio River.”⁴ The charts above show the \$319 Program’s efforts to reduce those numbers from the Wabash River Basin in Indiana.

⁴ Ohio River Valley Sanitation Commission. 2015, April. Lower Wabash River Nutrients and Continuous Monitoring Project. ORSANCO: Cincinnati, OH.

Six projects in the White River Basin (which drains to the Wabash River) worked to reduce nitrogen, phosphorus and sediment in the watershed. Most of the load reductions in this basin were due to the implementation of cover crops and residue management practices.



Five projects worked in the Ohio River Basin to reduce nitrogen, phosphorus and sediment. These reductions came primarily from implementation of cover crops and livestock-related BMPs.



As shown in Table 3 and in all of the above graphs, §319 projects in Indiana continue to reduce nutrients, sediment, and other nonpoint source pollutant runoff into waters of the state, and ultimately into our larger national fresh and salt water resources. Each BMP installed by each project in each basin adds up to nonpoint source pollution reduction and improved water quality. These efforts help create nonpoint source success stories in Indiana each year.

Nonpoint Source Success Story

§319 NPS Success Stories are stories about NPS-impaired waterbodies where restoration efforts have led to documented water quality improvements. Many stories are about waterbodies that have achieved water quality standards for one or more pollutants and/or designated uses after having been previously included on the state's 303(d) list of impaired waters.

In 2014, IDEM delisted the Devils Backbone-Indian Creek (AUID INN0452_05) for dissolved oxygen and *E. coli*. In 2015, IDEM submitted improvements in the Devils Backbone-Indian Creek watershed (HUC 051401040502) to the U.S. EPA to fulfill both measures SP-12 and WQ-10. U.S. EPA has accepted four segments of the Devils Backbone for WQ-10 and has posted this Success Story online at

http://water.epa.gov/polwaste/nps/success319/in_indian.cfm. IDEM is currently awaiting U.S. EPA approval for the watershed under the SP-12 measure.

The Emma Creek success story was submitted to EPA as an Indiana NPS success story in 2014 and approved in 2015. Below is the excerpt from the EPA website.

Reducing Livestock-Induced Pollution in Emma Creek

Agricultural runoff resulted in impaired biological conditions and failure to attain ammonia standards in a tributary of Indiana's Emma Creek. As a result, IDEM listed the Emma Creek tributary on the CWA Section 303(d) list in 2002. Numerous partners implemented BMPs throughout the Emma Creek watershed, resulting in decreased pollutant runoff. This has resulted in improved water quality in Emma Creek.

Problem

Emma Creek is a tributary to the Little Elkhart River, which flows through southeastern Lagrange County in northeastern Indiana. The 22,000-acre Emma Creek watershed includes 38.2 stream miles. Of these stream miles, 15.5 drain to Emma Lake. From the outlet of Emma Lake, Emma Creek flows another 3.8 miles to its confluence with the Little Elkhart River.

A tributary of Emma Creek was monitored by IDEM's Probabilistic Monitoring program in 2000. Analysis of fish community data showed an Index of Biotic Integrity (IBI) score of 14, which was well below the IBI score of ≥ 36 that is necessary to be considered supportive of biological integrity. In addition, habitat and chemistry data collected by IDEM in 2000 revealed that siltation, excess nutrients and low dissolved oxygen (particularly during the summer months) contributed to impaired biotic communities in the Emma Creek tributary. In addition, water sample analysis showed an ammonia level of 4.60 milligrams per liter (mg/L), much higher than the 2.1445 mg/L allowed by the water quality standard for the associated temperature and pH results measured concurrently at the site. These results prompted IDEM to add a 2.32-mile segment (Assessment Unit [AU] INJ01E1_T1301) to the 2002 CWA section 303(d) list for impaired biotic communities (IBC) and ammonia. Suspected pollutant sources included barnyard runoff, failing septic systems, and livestock accessing streams (and directly depositing waste and causing stream erosion).

Project Highlights

The Lagrange County SWCD developed a watershed management plan for the Little Elkhart River in 2007, using water quality data collected from June 2005 through December 2006 to guide the efforts. As part of the WMP implementation, the SWCD conducted a paired watershed study on the upper and lower Emma Creek subwatersheds from 2009 to 2011 (see Figure 5). In the paired study, the partners implemented BMPs in the upper watershed, which was the treatment watershed. The lower watershed was the control watershed. As part of this project, landowners installed BMPs in the Little Elkhart River watershed between 2009 and 2010, including 12 comprehensive nutrient management plans, two manure management plans, six heavy use area plans, four alternative watering facilities, three water access structures, three stream crossings, two pipe crossings, one livestock stream crossing, two critical area plantings (1.65 acres total), one waste storage facilities, 3.5 acres of filter strips, one waste management diversion and 20,493 feet of fencing (1,400 feet of which were installed upstream of the

impaired segment). In a separate effort, the NRCS worked with landowners to install 24 acres of pasture and hay planting throughout the watershed between 2000 and 2009.

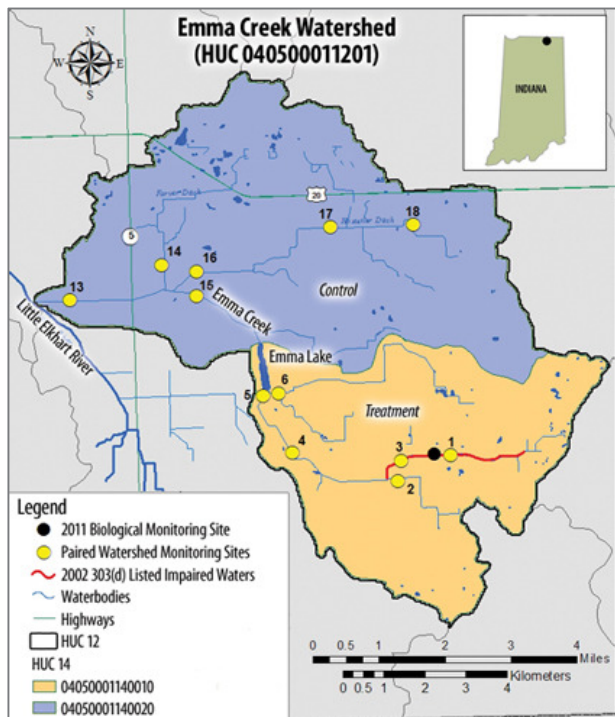


Figure 5 Emma Creek Watershed, the Subject of a Paired Watershed Study

Key to this restoration effort was the participation of members of the Amish community, who comprise about 75 percent of the agrarian population of the Emma Creek watershed. Participation in cost-share programs by this community has been traditionally low. Outreach and education proved to be a successful strategy in convincing the community to change their management practices to protect water quality, including installing some BMPs without financial assistance.

Results

Thanks to the BMPs implemented in the treatment watershed, water in the Emma Creek Tributary is improving. Data collected along the impaired segment (Site 1 on Figure 5) show that pollutant levels decreased in 2009–2010 as compared to 2007–2008 (Table 5). Data collected by the SWCD at the mouth of Emma Creek showed similar improvements in water quality, indicating that the benefits realized by the BMPs implemented in the upper watershed carry down through the treatment watershed and into the Little Elkhart River. Net load reductions in

the Emma Creek 12-digit watershed were 42 percent for E. coli, 20 percent for nitrates, 58 percent for total suspended solids, 63 percent for total phosphorus, and 89 percent for ammonia. With the exception of E. coli, all of these parameters are associated with watershed-based improvements eventually leading to healthier biological communities.

Table 5 A Comparison of Means for Selected Nonpoint Source Pollution-Related Parameters at Two Sites on Emma Creek, Before (2007–2008) and After (2009–2010) BMP Implementation

Parameter ¹	Site 1 (Tributary of Emma Creek)		Site 13 (Mouth of Emma Creek)	
	2007–2008	2009–2010	2007–2008	2009–2010
Turbidity (ntu)	13	8.8	74	56
TSS	23.4	17.2	107	27
Nitrate	1.1	1.1	3.1	2.8
Total Phosphorus	0.497	0.287	2.01	0.57
Biological Oxygen Demand	1.31	0.72	2.05	1.15

Ammonia	0.15	0.11	0.11	0.09
E. coli (cfu/100 mL)	1,147	750	17,109	16,483
¹ All units are mg/L unless otherwise noted.				

In 2011 IDEM returned to the 2.32-mile-long impaired stream reach (Emma Creek Tributary) to monitor for change in the fish community. The IBI score remained at 14, indicating that no significant change in biological condition has yet occurred. These data are being interpreted as evidence of a time lag between BMP implementation and habitat recovery.

Although the SWCD data appear to show that ammonia levels are meeting water quality standards, an ammonia delisting can't occur until a third-party data program to measure the quality of the data is in place. Therefore, the impaired segment will remain listed as impaired for both IBC and ammonia. In 2014, Indiana revised its segmentation methodology. The existing, 2.3-mile-long impaired segment has been incorporated into an 8.69-mile-long segment (AU INJ01C1_T1005: Emma Lake Inlet) that begins at the inlet of Emma Lake (not including the lake itself) and includes the upstream portion of Emma Creek and the unnamed tributary.

Partners and Funding

Water quality improvements are the result of collaboration between the Lagrange County SWCD, IDEM, Indiana Department of Natural Resources, the Great Lakes Commission and NRCS. The Lagrange County SWCD sponsored the creation of the WMP, and coordinated the implementation of the paired watershed study. IDEM funded the WMP and BMP implementation with \$1,748,604 of CWA §319 funding. The Indiana Department of Natural Resources and Great Lakes Commission both funded watershed land treatment practices and the implementation of the WMP, with contributions of \$75,000 from the former, and \$515,000 from the latter, respectively. NRCS provided \$5,328 in funding through the Agricultural Water Enhancement Program and was instrumental in providing engineering design and support. Lastly, watershed landowners independently paid \$30,000 to install BMPs without cost share.

Section 205(j) Grant Program

The Section 205(j) Grant Program is dedicated to water quality management planning. Funds are used to determine the nature, extent, and causes of point and NPS pollution problems and to develop plans to resolve these problems. There is no match required for these funds. This year IDEM received \$340,000 in FFY 2015 funds. These funds will be used for two projects: one watershed management plan development project and a water quality monitoring project in the Kankakee. A list of all 205(j) projects open or pending during this fiscal year is in Appendix E of this report.

Integrating the NPS Program with the 303(d) Vision

In FFY 2014, U.S. EPA announced that it was working with states to develop and implement a new framework to achieve the goals of CWA Section 303(d). This framework is known as the "TMDL Vision." In FFY 2015, IDEM NPS worked with the TMDL program to identify priorities according to the TMDL visioning process that would complement NPS program efforts.

IDEM's current TMDL/restoration strategy is to complete in-house and contracted watershed-based TMDLs and then fund local watershed groups to implement those watershed-based TMDLs through a watershed planning and restoration process. Therefore, IDEM currently chooses its TMDL projects based upon where there is local interest in restoration, as identified by the NPS program's Watershed Specialists. The goal for the prioritization process was to identify waters that could most practicably be restored through a TMDL process and those that may be restored through alternatives to the TMDL process, at least initially. In Indiana, one of those alternatives would be locally-led watershed planning efforts to achieve water quality standards.

There are currently 2918 impairments in Category 5A of Indiana's 2014 303(d) List of Impaired Waters. IDEM's capacity is such that one in-house, watershed-based TMDL report can be produced per year (recently completed watershed-based TMDL reports have resulted in the creation of a range of 28-66 TMDLs for varying segment/impairment combinations). Given the number of impaired segments and IDEM's capacity to address them, IDEM determined that a subset of impaired waters would be chosen as high priority watersheds for TMDL calculation. IDEM chose aquatic life designated use impairment (due to a pollutant) as the first priority criterion, given the following rationale:

Waters that have been designated with an impaired biotic community, but show a reasonable expectation for ecological recovery by means of a "good" habitat score (QHEI) were prioritized first for TMDL development. Indiana has a highly modified hydrologic landscape, and where current law and codes prohibit physical stream restoration, NPS improvements will most reasonably show biological community response where adequate habitat already exists.

In addition, IDEM decided to focus its future TMDL efforts to watersheds where neither a multi-parameter TMDL, nor a watershed planning effort has been completed. This decision allows the TMDL process to most expediently work through new TMDLs without getting bogged down either in opening a previously-completed TMDL or duplicating efforts where work is already progressing to improve water quality.

The key to successful restoration is implementation of a plan, whether that is a TMDL implementation plan or 9-Elements watershed management plan or some alternative. In Indiana, where NPS prevention and reduction is primarily voluntary, the State relies on local efforts to assist in restoration of NPS impaired waters. Therefore, currently, TMDLs are only calculated where a dedicated entity (e.g. local watershed group) is motivated to implement the TMDL. These local entities are identified by the NPS Watershed Specialists.

In addition, candidates for near-term TMDL development were examined to determine whether additional watershed-based benefits could be gained by completing TMDLs in each of the candidate watersheds. Candidates were screened for whether or not they contained a drinking water source; influenced a recreational lake; harbored an endangered, threatened or rare species; or was a priority for one of the NPS program's partners. As a result of this impaired waters analysis, a list of nineteen 10-digit watersheds, with priorities ranging from high to low, was submitted to U.S.EPA to serve as options for future TMDL creation.

At the same time as the TMDL prioritization work was proceeding, the NPS program prepared its solicitation for FFY 2016 CWA §319(h) grant funding. Because of the decisions made during the TMDL

prioritization, the NPS program was able to solicit for restoration funding for watersheds that were not candidates for the current “Vision” priority list, but are in need of restoration all the same. As of the writing of this report, 26 Notices of Intent to apply for FFY 2016 have been received by the NPS program. These applications will either build on existing or create new 9-Element watershed management plans.

GOAL 5: PROTECT SENSITIVE, VULNERABLE, AND HIGH QUALITY WATERS OF THE STATE SO THAT THEY MAY CONTINUE TO MEET THEIR DESIGNATED USES

Prior to FFY 2013, IDEM's NPS Program emphasized the restoration of impaired waters, while the issue of protecting sensitive, threatened, or high-quality waters was largely unrecognized. With the passage and EPA approval of state antidegradation rules (327 IAC 2-1.3) in 2012, it is only fitting that these waters be considered in the NPS Program. While the main priority of Indiana's NPS Program must remain the restoration of impaired waters, there remains room to consider projects for which protection is an objective. For the purposes of this goal, the NPS Program considers "sensitive, vulnerable and high quality waters" to include water quality assessment Category 1 waters, watersheds including karst landscapes, outstanding state resource waters (OSRWs – which include national resource waters), drinking water source waters, cold/coolwater/salmonid waters, and waterbodies harboring endangered species.

The WPRS first attempted to address protection issues under this State NPS Management Plan starting in FFY 2014. In November 2013, IDEM embarked on a watershed characterization study in the Southern Whitewater watershed (HUCs 0508000205, 0508000306, 0508000308), an OSRW. The purpose of this study was to provide the data to complete a TMDL for *E. coli*, total nitrogen, total phosphorus, and sediment that would then be passed on to the local watershed group (a §319 planning grant recipient) for additional public involvement and BMP decision-making for a portion of the watershed. This TMDL includes two sections of river with Indiana endangered species (the variegate darter, *Etheostoma variatum*, Family: Percidae and the cobblestone tiger beetle, *Cicindela marginipennis*, Family: Cicindelidae, which is also globally imperiled). These species are sensitive to sedimentation, a primary result of nonpoint source pollution.

The draft TMDL recommends lowering the sediment target (using total suspended solids as a surrogate) from 30 mg/L to 25 mg/L in order to protect the variegate darter and cobblestone tiger beetle within their limited range. It also suggests that removal of the Laurel Feeder Dam or the addition of a fish passage through both the Laurel Feeder and Brookville Lake Dams could assist the species in expanding its range. Laurel Feeder Dam is outside of the watershed that the WMP will be addressing. The Brookville Lake Dam is just upstream of the area covered by the Southern Whitewater WMP. The watershed group creating the WMP could conceivably work with the IDNR and others to determine if the Brookville Dam is a suitable candidate for a fish passage.

During the draft TMDL public meeting the watershed group brought an additional endangered species (cobblestone tiger beetle, *Cicindela marginipennis*) to the attention of the TMDL program. This was done to assist in protecting the area of concern where the cobblestone tiger beetle was found, two miles upstream of Brookville in Franklin County. Due the information provided by the watershed group the TMDL program, the Storm Water program and the IDNR are reviewing the storm water treatment at a local off-road recreation area.

The IDEM TMDL and NPS staff worked together to provide data, a monitoring demonstration/field day, and draft load reductions to the local watershed group. The draft TMDL meeting provided an opportunity for public input on the TMDL and included a presentation from the watershed group on their efforts and how to become more involved in restoration activities. The TMDL outlined the areas of protection to the watershed group and provided information on pollutants of concern. The NPS staff

will continue to provide technical assistance to the watershed group to address protection areas in the watershed.

Adaptive Management

The State NPS Management Plan stated that IDEM will work with EPA to correct any deficiencies that might become apparent in the program through the NPS Annual Report. Since the completion of the State NPS Management Plan earlier this year, several errors, omissions, or the need for simple changes have come to light. Table 6 Revisions to Reportable Activities for 2015 (updates in bold) outlines changes (in bold) that should be made to eleven objectives of the State NPS Management Plan, with justification.

Table 6 Revisions to Reportable Activities for 2015 (updates in bold)

Obj. #	MM	Objective	FFY Start	FFY End	Rationale for Change
1.2	a	Complete ongoing WMPs in the Coastal Zone: <i>East Branch Little Calumet River</i>	2012	2015 2016	Organizational issues and staff turnover at the sponsor level have put this project behind schedule. This group was approved for an extension of their contract, which ended 7/16/15. The most recent watershed management plan meets all but two of IDEM's 2009 Checklist elements; and IDEM has received a revised draft which has not yet undergone review. A near-final draft is with U.S. EPA for review, as well.
1.2	c	Complete ongoing TMDLs and WMPs in the Coastal Zone: <i>Salt Creek</i> .	2010	2018	The TMDL was complete and approved 09/07/2012 and has been posted on IDEM's website. Completion of the WMP has been turned over to U.S. EPA. IDEM support for this project during FFY 2015: WSS provided water quality information from the AIMS database, facilitated coordination and communication between the contractors and past key stakeholders (i.e. Save the Dunes and the Urban Waters Federal Partnership), and attended the first stakeholder meeting in May 2015. The contractor's scope of work with U.S. EPA only calls for the document to meet EPA's nine minimum elements of a watershed plan. However, IDEM will still review the final draft WMP (expected January 2016) and compare it IDEM's 2009 WMP checklist to determine

Obj. #	MM	Objective	FFY Start	FFY End	Rationale for Change
					if the WMP is eligible for future state 319 funding.
1.3	b	Restore and protect water quality in critical areas of coastal WMPs: <i>Deep River</i>	2016	2017	The project is behind schedule in developing the WMP due to the time it took Purdue Calumet to work on the modeling efforts. Therefore, work on the restoration projects have not yet started.
1.11	a	IDEM NPS will cross-reference the monthly SRF project status report with active 319 projects and/or other known watershed efforts to identify watershed opportunities and meet quarterly (March, June, September, December) with CWSRF Loan Program to communicate those that may benefit from SRF funding.	2014	2018	Having worked with SRF for a full year on this topic, the NPS program has decided to focus work on those communities who have applied for CWSRF funding, but who have not yet progressed to providing a preliminary engineering report. NPS staff believe that the earlier a community engages with IDEM NPS or their local watershed group the more favorable the outcome for both applicant and NPS pollution abatement. Ideally, the community should engage IDEM and/or their local watershed group before they apply, so that suggestions could be made on potential projects in critical areas as documented by a WMP. However, this is a rare event and so IDEM NPS will continue pursuing the connection between CWSRF loans and WMPs via identified SRF applicants on a <i>quarterly</i> basis. IDEM sees no reason to continue to meet with SRF quarterly, as not much changes after the first prioritization in July of each year.
2.10	a	Complete Hoosier Riverwatch External Data Quality Documentation template	2014	2015 2018	With the movement of the Hoosier Riverwatch program into IDEM, and the decision to integrate data generated from it into the External Data Framework, the template has transitioned into an External Data Quality Documentation template, instead of a strictly Hoosier Riverwatch template, and additional work needs to be done to complete it. This template will document the information needed for Level 1 and 2 data and will follow U.S. EPA's QAPP guidance. A QAPP template for NPS grantees (Level 2 in the External Data Framework) has already been completed.
2.11	b	Complete the development of technical assistance materials for the EDF and web site development to support its implementation.	2014	2015	DJ Case & Associates presented their technical assistance materials for the EDF to IDEM staff on 2/28/14. These materials included content for future webpages and a decision matrix on

Obj. #	MM	Objective	FFY Start	FFY End	Rationale for Change
					how to implement technical assistance on the web. To date, IDEM has focused most of its available resources to finalizing general and technical guidance for EDF participants, developing an online databased to facilitate data entry by participants and data quality review by OWQ staff, and developing the content needed to support EDF implementation online. Once these primary components of the EDF are implemented and fully functional, OWQ will turn its attention to developing the web pages and other materials needed to deliver the technical assistance materials developed by D. J. Case. OWQ anticipates having the staff resources necessary to accomplish this work by mid-2016.
3.3	c	Work with partners on consistent messaging surrounding sediment and nutrients.	2015	2015 2018	This work will be a long-term coordination versus a one-time event, as originally conceived. IDEM would like to propose work on this topic will continue through 2018.
4.8		Develop guidance for the identification of critical areas.	2014	2014	This guidance is in progress. A draft document was produced by NPS staff; U.S. EPA disagreed with IDEM's guidance and a meeting was held Oct 2, 2014 to clarify EPA's position on critical areas. Later, a call was held with Region V on 1/23/15 to further clarify issues from the Oct 2 meeting. IDEM is working with U.S. EPA to clarify critical areas in ongoing individual watershed management plans. IDEM is waiting to hear from EPA before finalizing guidance.
4.10	a	Investigate and adopt a standard method to estimate E. coli reductions.	2014	2018	Indiana continues to struggle with this objective and has asked for assistance from Region V. The last word on this has been that Region V is working to update the STEP-L and Region V models to include <i>E. coli</i> . Until further assistance is received from Region V, Indiana will likely not be able to move forward on this issue.
5.6		Work with IDEM's Ground Water section and watershed groups, as well as CWSRF and Drinking Water SRF, to identify wells in need of proper decommission.	2015	2018	Staff turnover has delayed this objective for FFY 2015.

Appendix A

Reportable Activities for 2015*

*Items grouped together by color, denoting sub-objectives of the same parent objective

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
1.1		Assist Indiana Department of Natural Resources, Lake Michigan Coastal Program to obtain full approval of all outstanding measures on the LMCP CNPC plan. Progress: NPS staff met with LMCP staff on 8/27/15 to discuss outstanding measures and the strategy and timeline to complete them. Participated in Coastal Program's 312 Evaluation with NOAA. Attended Urban Waters meeting (on 1/30/15 & 7/24/15), Watershed Collaboration meetings (4/2/15, 7/9/15), and septic coordination meetings (2/19/15, 4/30/15, 7/24/15, 8/18/15). Watershed Specialist attended a "no adverse impacts for coastal communities" workshop. Several IDEM staff participated in various calls of the Coastal States' Organization Nonpoint Source Control workgroup to glean insight into how to meet remaining measures.	2014	2018	ongoing	ongoing – significant progress
1.1	a	NPS NW WSS will assist the LMCP with on-site disposal systems measures as needed/requested. Progress: The Northwest IN WSS has been attending the quarterly Septic System Workgroup meetings in 2014 and 2015. WSS has provided data as requested to help with the unsewered mapping project that the Illinois-Indiana Sea grant is working on.	2014	2018	ongoing	ongoing – some progress
1.1	b	IDEM NPS will host a coordination meeting with U.S. EPA Region V, LMCP, and IDEM NPS to discuss the "linkage" requirement of 6217. Progress: This meeting took place on April 4, 2014 at IDEM's Northwest Regional Office with EPA, DNR, IDEM, NOAA in attendance.	2014	2015	one-time	complete
1.2	a	Complete ongoing TMDLs and WMPs in the Coastal Zone: <i>East Branch Little Calumet River</i> . (Note: there is no TMDL for EBLC – mistake in compiling table – correctly noted in Action Register). Progress: Organizational issues and staff turnover at the sponsor level have put this project behind schedule. This group was approved for an extension of their contract, which ended 7/16/15. The most recent watershed	2012	2014 2016	ongoing	ongoing - delayed

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		management plan meets all but two of IDEM's 2009 Checklist elements; and IDEM has received a revised draft which has not yet undergone review. A near-final draft is with U.S. EPA for review, as well.				
1.2	b	Complete ongoing TMDLs and WMPs in the Coastal Zone: <i>Deep River</i> . Progress: The final TMDL was approved by U.S. EPA on 9/26/14. Planning/implementation §319 grant term 1/1/2014 – 12/31/2017 The WMP was originally scheduled to be complete by the end of FFY 2015. However, the schedule for the WMP was revised to extend the time frame by 6 months since it took longer than expected to get the Purdue Calumet modeling work started. IDEM staff assisted NIRPC w/setting up a Load Duration Curve for Deep River WMP projects so that they can calculate estimated load reductions.	2013	2015	ongoing	ongoing – some progress
1.2	c	Complete ongoing TMDLs and WMPs in the Coastal Zone: <i>Salt Creek</i> . Progress: The TMDL was complete and approved 09/07/2012 and has been posted on IDEM's website. Completion of the WMP has been turned over to U.S. EPA. IDEM support for this project during FFY 2015: WSS provided water quality information from the AIMS database, facilitated coordination and communication between the contractors and past key stakeholders (i.e. Save the Dunes and the Urban Waters Federal Partnership), and attended the first stakeholder meeting in May 2015. The contractor's scope of work with U.S. EPA only calls for the document to meet EPA's nine minimum elements of a watershed plan. However, IDEM will still review the final draft WMP (expected January 2016) and compare it IDEM's 2009 WMP checklist to determine if the WMP is eligible for future state 319 funding.	2010	2018	ongoing	Ongoing – see adaptive management
1.3	a	Restore and protect water quality in critical areas of coastal WMPs: <i>Trail Creek</i> . Progress: A 319 implementation grant was awarded to Trail Creek using FFY 2012 funds for the term 2/12/2013-2/11/2016. So far they have installed 1860 sq. ft. flow-through rain garden; 107.7 ac cover crops; and 1 CNMP covering 776.19 ac.	2013	2014 2016	ongoing	ongoing – some progress
1.3	b	Restore and protect water quality in critical areas of coastal WMPs: <i>Deep River</i> Progress: The project is behind schedule in developing the WMP due to the time it took Purdue Calumet to work on the modeling efforts. Therefore, work on the restoration projects have not yet started.	2015	2017	ongoing	Ongoing - delayed

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
1.4		Support the Conservation Reserve Enhancement Program (CREP), Mississippi River Basin Initiative (MRBI), Great Lakes Restoration Initiative (GLRI), Lake and River Enhancement (LARE), Clean Water Indiana (CWI), and other Indiana Conservation Partnership (ICP) and statewide initiatives as they become available by:	2014	2018	ongoing	ongoing – significant progress
1.4	a	Forwarding solicitation or information as it becomes available. Progress: The WSS share funding opportunities with groups and stakeholders in their regions as notices become available. Examples of funding that have been passed on include the GLRI Urban Forestry grant (IDNR), the Lake and River Enhancement Program (LARE – IDNR), Conservation Innovation Grants (USDA-NRCS), and the Regional Conservation Partnerships Program (RCPP – USDA-NRCS).	2014	2018	ongoing	ongoing – completed for FFY 2015
1.4	b	Participating in ICP planning meetings to determine priorities for funding/initiatives that align with WMP critical areas, water quality, and/or TMDL priority areas (every other month). Progress: IDEM management attended ICP leadership meetings on 12/16/15, 2/17/15, 6/16/15, 8/18/15. NPS staff recommended a list of 36 HUC-12 critical areas watersheds from 9 watershed management plans with active groups for consideration during the Phase II MRBI discussion.	2014	2018	ongoing	ongoing – objective complete for FFY 2015
1.4	c	By promoting the programs through the watershed specialists (WSS) and work with watershed groups to identify/recommend projects that would fit well under the priorities for each funding source. Progress: As opportunities become available, the WSS work with local groups to match funding priorities to local project needs (examples include Big Pine, Fawn River, and Cobus Creek groups received LARE funding; Beargrass Creek added to NWQI). In addition, a meeting was held with LARE staff on 1/29/15 to discuss their grant-making progress and how to coordinate so that LARE/319 is not funding incongruous projects. The WSS attended a Cicero Creek NRCS MRBI kickoff meeting along with ISDA, USDA, SWCD, and other partners on 4/13/2015.	2014	2018	ongoing	ongoing – objective completed for FFY 2015
1.4	d	By including them in relevant TMDLs as methods for implementation. Progress: included in Section 9 of Southern Whitewater (to be submitted by the end of FFY 2015).	2014	2018	ongoing	ongoing – objective completed for FFY 2015

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
1.4	e	By funding ISDA technicians to design and implement BMPs in select watersheds (ARN 1-66). Progress: The MOU with ISDA to fund three technicians to plan/install BMPs in three target watersheds closed on 1/17/15. The ISDA techs have been moved to EPA-funded positions in the Western Lake Erie Basin.	2013	2015	ongoing	Completed
1.5		Utilize the ICP as an advisory group for priority state NPS policies and updates by participating in bimonthly leadership meetings. Progress: IDEM management attended ICP leadership meetings on 12/16/15, 2/17/15, 6/16/15, 8/18/15. The ICP functions in an advisory capacity for the State Nutrient Reduction Strategy, including nonpoint source measures there-in, co-authored by ISDA and IDEM.	2014	2018	ongoing	ongoing – objective completed for FFY 2015
1.6		Continue to provide technical assistance to local watershed groups through the WSS or project manager as documented through quarterly site visit reports and the Section 319 Annual Report. Progress: WSS provided technical assistance to at least 71 distinct groups in FFY 2015. Site visit reports are on-file with related project documents.	2014	2018	ongoing	ongoing – objective completed for FFY 2015
1.7		Utilize the TMDL-WMP template for 2014 TMDLs and beyond. Progress: Southern Whitewater written on the template and will be submitted by the end of FFY 2015. Upper Mississinewa and South Fork Blue River are currently being written on the template.	2014	2018	ongoing	ongoing – objective completed for FFY 2015
1.8		Continue to partner with the IN-USDA-NRCS on the National Water Quality Initiative (NWQI) for as long as the Initiative remains a national priority. Progress: School Branch in the Eagle Creek watershed is being monitored at multiple levels by various partnership agencies (IUPUI - edge-of-field monitoring at Starkey property; IDEM - fixed station monitoring above and below Starkey; and USGS - sentry gage for watershed monitoring. IDEM monitoring staff met with NRCS several times in FFY 2015 as noted in objective 1.8.b.	2014	2018	ongoing	ongoing – objective completed for FFY 2015
1.8	b	Coordinate with NRCS on at least an annual basis to share in the decision-making on next steps for the Initiative (annually). Progress: IDEM targeted monitoring chief met with NRCS to discuss NWQI on 12/23/14, 6/26/15, 9/21/15. IDEM NPS provided NRCS with WMP information on NWQI watersheds as required by the FFY15 Bulletin. IDEM also worked with NRCS to add the Beargrass Creek watershed to	2014	2018	annually	Completed for FFY 2015

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		NWQI.				
1.8	c	Fund Silver Creek (051201040501) implementation as a critical area of the larger Middle Eel watershed through their section 319 grant (ARN 3-4). Progress: IDEM-NPS obligated \$500,000 in FFY 2012 funds to the Middle Eel implementation project, with an initial \$250,000 in direct cost-share assistance. Of those cost-share funds allocated, \$9,450 went towards 88 acres no-till in the Silver Creek watershed.	2012	2016	ongoing	ongoing – some progress made
1.8	d	Provide implementation funding for the Middle Patoka River watershed, thereby indirectly providing outreach and education to Ell Creek (051202090405), which, though not a critical area as defined in the Middle Patoka WMP, will receive benefits from the 319 grant (ARN 3-31) Progress: Ell Creek IS a critical area for the Middle Patoka plan. A rain garden in the Ell Creek watershed is currently being installed at Huntingburg. No other practices have been installed in this sub-watershed. However, because Ell Creek is a critical area, there was some promotion of BMPs in the watershed.	2013	2016	ongoing	ongoing – some progress made
1.9		Support implementation of the State Nutrient Reduction Strategy once approved. Progress: A new version of the strategy addressing U.S. EPA comments was submitted 7/31/15.	2014	2018	ongoing	ongoing – some progress
1.9	a	Review priorities of both documents and import objectives of NPS-related importance to the state NPS management plan. Progress: Since the Strategy has not yet been approved by U.S. EPA, no work has been done to import objectives into the State NPS Management Plan.	2014	2014	one-time	pending
1.10		Dedicate an average of \$100,000 in 319 funds to the Coastal Zone (Little Calumet-Galien watershed, HUC 04040001) annually until all of the remaining conditions of the LMCP CNPCP are met. Progress: In FFY 2013, \$455,550 in funding was allocated to the Deep River project within the coastal zone. This commitment has been met through 2017.	2014	until full approval	ongoing	completed
1.11		Coordinate with CWSRF to link loan applicants and local watershed groups. Progress: The NPS program approached the City of Bluffton to include an NPS project related to the Upper Wabash River WMP. A wetland restoration in a critical area of the WMP was tentatively chosen to be the NPS project, but in the end, the City	2014	2018	ongoing	ongoing – some progress

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		proposed removing septic systems instead in its preliminary engineering report. No other communities have been approached.				
1.11	a	IDEM NPS will cross-reference the monthly SRF project status report with active 319 projects and/or other known watershed efforts to identify watershed opportunities and meet quarterly (March, June, September, December) with CWSRF Loan Program to communicate those that may benefit from SRF funding. Progress: NPS coordinated with CWSRF Program staff on 2014 third and fourth quarter applications to the program and the status of projects that have been prioritized for funding. NPS staff also obtained the CWSRF 1st quarter 2015 PPL and cross-referenced with WMPs/TMDLs, loan closing date, and whether or not a green or NPS project had been added to the loan in order to discern which projects to work with. As of the writing of this report, no specific projects have been targeted from the 1st quarter 2015 list. Having worked with SRF for a full year on this topic, the NPS program has decided to focus work on those communities who have applied for CWSRF funding, but who have not yet progressed to providing a preliminary engineering report. NPS staff believes that the earlier a community engages with IDEM NPS or their local watershed group the more favorable the outcome for both applicant and NPS pollution abatement. Ideally, the community should engage IDEM and/or their local watershed group before they apply, so that suggestions could be made on potential projects in critical areas as documented by a WMP. However, this is a rare event and so IDEM NPS will continue pursuing the connection between CWSRF loans and WMPs via identified SRF applicants.	2014	2018	ongoing	ongoing –see adaptive management
1.11	b	Annually, the NPS program will notify the CWSRF and DWSRF program of the 319 projects that are approved for funding, upon notice from EPA. Progress: IDEM NPS forwarded a list of 2015 proposed projects to the CWSRF program on 8/26/15.	2014	2018	annually	complete for FFY 2015
1.11	c	Where there are potential projects, the appropriate NPS staff participates with the CWSRF staff in the community orientation or planning meeting. A fact sheet describing the potential NPS project(s) opportunity is included in the SRF packet to the community, and the NPS staff promotes the potential project(s), provides contacts for technical assistance, and provides information on other funding sources active in the watershed (such as NRCS, Clean Water Indiana, 319, 205(j) etc.)	2014	2018	ongoing	ongoing – some progress

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		Progress: Draft fact sheet remains posted to IDEM's website. The WSS contacted the local watershed group for the Upper Wabash River in FFY 2014 to determine whether there was an opportunity to add a NPS project to the CWSRF loan and initiate conversations with the Mayor of Bluffton. In FFY 2015, the City of Bluffton submitted preliminary engineering reports, neither of which included the wetland, but did include septic system removal. No other projects have come forward as potential candidates for watershed planning and SRF integration.				
1.12		Work with partners to model, assess, and prioritize critical watersheds in the state. Progress: Held conference call with Region V TMDL on Oct 29 to discuss visioning (esp. prioritization) process. Discussed prioritization process with other members of the Indiana Conservation Partnership, who shared draft priority watersheds from the State Nutrient Management Plan. The TMDL priority framework document submitted to U.S. EPA on 7/13/15.	2015	2018	ongoing	completed
1.13		Utilize IDEM WSS to assist partners with NPS planning and implementation activities. Progress: IDEM WSS have been working with at least 71 distinct groups on watershed planning and implementation activities.	2014	2018	ongoing	ongoing – some progress

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
2.1		Require the use of the Environmental Monitoring for Watershed Groups handbook for 319 grantees. Progress: All 319 grantees are required to monitor the core parameters from the Environmental Monitoring for Watershed Groups as a part of their grant agreements.	2014	2018	annually	complete for FFY 2015
2.2		Coordinate with NRCS to develop a sampling regime for NWQI projects. Progress: This task was completed in FFY 2014.	2014	2015	one-time	complete
2.3		Import 319 grantee data meeting appropriate data quality criteria into NPS-AIMS or the Hoosier Riverwatch Database to be uploaded into STORET on a routine basis. Progress: A 205(j) contract for the continued maintenance and upgrades of the	2014	2018	ongoing	ongoing - some progress made

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		AIMS database was in place from 8/11/14-8/10/15 (ARN 4-213). A new 205(j) contract for 2 years of maintenance and upgrades began 8/11/15. For each grantee project that will have data imported into AIMS, IDEM site numbers must be assigned and communicated to grantees. This has been completed for 19 projects. However, data will not be entered until after the data has been collected, approximately 2-3 years after the project has begun. In addition, the HRW database is currently being upgraded – these upgrades are on-schedule for completion by December 2015. The data results in both AIMS and HRW database will be sent routinely to EPA for storage and public access. Two past projects (Dunes Creek implementation and Mill Creek-Blue River) have been uploaded to STORET/WQX.				
2.4		Invite the participation of local project leaders when conducting 305(b) CWA assessments on baseline monitoring data. Progress: Assessments on Upper Mississinewa watershed with local watershed leaders in attendance occurred on 6/4-6/5/15. Assessments on Southern Whitewater data with local leaders in attendance occurred on 2/18-2/19/15.	2014	2018	ongoing	ongoing – completed for FFY 2015
2.5		Evaluate results of the monitoring program and make adaptive management decisions on an annual basis. Progress: Monitoring review meetings on a variety of topics held 12/1/14, 12/17/14, 2/12/15, and 3/19/15.	2014	2018	annual	ongoing – complete for FFY 2015
2.6	a	Conduct exploratory meeting to determine desired outcomes/goals of an NPS assessment methodology. Progress: met with 305(b)/303(d) Coordinator to discuss. It was decided that the desired outcomes/ goals of this would be to separate which pollution comes from point and nonpoint sources. An additional goal is to figure out the extent and magnitude of NPS in the state to update the 1989 State NPS Assessment. It was determined that, through the 305(b) assessment process, we already have a NPS assessment methodology.	2015	2015	one-time	complete
2.6	b	Investigate the inputs required to develop a NPS assessment methodology and if development of a NPS assessment methodology is feasible, develop a timeline for methodology development. Progress: It was determined that a methodology for distinguishing point from NPS pollution already exists through the state's 305(b) assessments. However, this methodology needs to be better articulated and	2015	2015	one-time	complete

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		documented. Methodologies for assessing particular NPS parameters (such as sediment and pesticides) remain to be developed. The 305(b)/303(d) coordinator will not create a separate methodology, but will incorporate potential nonpoint sources in the methodologies that are being developed. In FFY 2015, IDEM is focused on developing an assessment methodology for drinking water, which will include pesticides. She is also exploring methodologies to assess sedimentation issues.				
2.7		Continue to fund the Clean Lakes Program (volunteer and professional) data collection for use in Clean Water Act 305(b) and 314 assessments and 303(d) listings. Progress: Indiana University continues to sample for the Clean Lakes Program under a FFY 2014 §319 grant. In the 2015 sampling season, 80 lakes will be sampled for assessment. This grant will fund the program through the 2018 sampling season.	2014	2018	ongoing	ongoing – objective complete for FFY 2015
2.8		Direct IDEM resources to perform baseline characterization monitoring of at least one watershed annually to support TMDL and watershed planning efforts. Progress: Monthly sampling for the Southern Whitewater TMDL/WMP project began on 11/13/13 and ended 10/22/14. Monthly sampling for the Upper Mississinewa River TMDL/WMP project began on 4/14/14 and ended on 3/17/15. Monthly sampling for the South Fork Blue River began on 11/12/14 and is scheduled to end on 10/27/15.	2013	2018	annually	ongoing – objective complete for FFY 2015
2.9		Utilize IDEM resources to monitor waterbodies identified as targets of the National Water Quality Monitoring Initiative (NWQI) as described in the sampling design developed by IDEM and NRCS. Progress: IDEM continues to sample for the NWQI in the Eagle Creek watershed using its fixed stations monitoring protocols.	2015	2018	ongoing	ongoing – some progress
2.10	a	Complete Hoosier Riverwatch QAPP template. Progress: A rough draft of the template has been completed. However, with the movement of the Hoosier Riverwatch program to IDEM, and the decision to integrate data generated from it into the External Data Framework, the template has transitioned into an External Data Quality Documentation template, instead of a strictly Hoosier Riverwatch template, and additional work needs to be done to complete it. Acceptance criteria for Level 1 data have been completed and the External Data Quality Documentation	2014	2014 2015	one-time	ongoing – significant progress

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		template will follow U.S. EPA's QAPP guidance. A QAPP template for NPS grantees (Level 2 in the External Data Framework) has already been completed.				
2.10	b	Provide support for 20 Hoosier Riverwatch workshops (volunteer trainings) and maintain current loaner/teaching trunks. Progress: In FFY 2015, Hoosier Riverwatch has supported 25 (24 Basic and 1 Advanced <i>E. coli</i>) local workshops and educated and trained 222 water quality monitoring volunteers throughout Indiana. The HRW Coordinator trained and equipped 10 new instructors, bringing the active total back up to 36. There are currently 9 more workshops scheduled for this season, 3 of which are Advanced <i>E. coli</i> workshops. The program has distributed 17 equipment packages to a variety of schools, non-profit, and government organizations. The Riverwatch program also maintains 21 loaner trunk locations around the state. Trunks contain all the supplies needed for a volunteer monitor to conduct stream sampling events. Volunteers who represent a non-profit organization can apply to receive and maintain their own individual monitoring kits. Volunteers who do not represent an organization can sign out and utilize loaner trunks in order to conduct their sampling. Loaner equipment trunks located around the state have seen an increase in use during 2015; with a couple of locations loaning out two trunks at a time.	2014	2018	annually	ongoing – objective complete for FFY 2015
2.10	c	Provide support for maintenance and upgrades of the Hoosier Riverwatch water quality monitoring database and associated websites. Progress: The HRW database framework has not been updated since it was developed in 2000. In FFY 2014, IDEM allocated Section 319 funds to upgrade the database and make it more user friendly. The proposed project is a large overhaul of the HRW data entry website with the future goal to have infrastructure based on PHP (Hypertext Preprocessor) instead of ASP (Active Server Page); allow more flexibility for users to enter data easily on tablets; allow the general public an easier time gathering information from the website; and allow users' data to be uploaded to IDEM's Assessment Information Management System (AIMS). The project is on track to be completed by the end of August this year. The mapping functions, which failed midway through the contract, will be repaired with an extended contract and additional	2014	2018	ongoing	ongoing – significant progress

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		funds. The mapping tools are slated to be fully functional again by the end of the year 2015.				
2.11	a	Complete acceptance criteria for External Data Framework. Progress: This has been completed. Acceptance criteria can be obtained by request from IDEM's 305(b)/303(d) Coordinator or Secondary Data Coordinator.	2014	2014 2015	one-time	complete
2.11	b	Complete the development of technical assistance materials for the EDF and web site development to support its implementation. Progress: DJ Case & Associates presented their technical assistance materials for the EDF to IDEM staff on 2/28/14. These materials included content for future webpages and a decision matrix on how to implement technical assistance on the web. To date, IDEM has focused most of its available resources to finalizing general and technical guidance for EDF participants, developing an online databased to facilitate data entry by participants and data quality review by OWQ staff, and developing the content needed to support EDF implementation online. Once these primary components of the EDF are implemented and fully functional, OWQ will turn its attention to developing the web pages and other materials needed to deliver the technical assistance materials developed by D. J. Case. OWQ anticipates having the staff resources necessary to accomplish this work by mid-2016.	2014	2014 2015	one-time	ongoing - delayed
2.11	c	Begin accepting, reviewing and ranking water quality data provided by external organizations and, if appropriate, using the data to make 305(b)/303(d) water quality assessment and listing decisions. Progress: The EDF became fully functional on September 23, 2015 and has begun to actively solicit data. In addition, OWQ's Secondary Data Coordinator has been proactive in identifying and working with interested parties to help them understand the different data quality requirements of the different tiers in the EDF and some of the things they can do to help improve the quality of their data to achieve a higher ranking. OWQ has developed an online database to accept submittals of water quality data and to facilitate the upload of these data to OWQ's Assessment Information Management System to expedite their review and help to identify any that are useable in determining where water quality improvements may have occurred.	2014	2014 2015	one-time	complete

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
2.12	a	Evaluate water quality data submitted through the EDF process, as well as grantee monitoring, to identify watersheds that should be surveyed for possible NPS water quality improvements. Progress: IDEM intends to solicit for external data to incorporate into the 2016 303(d) cycle. Grantee data is currently reviewed for potential improvements.	2014	2018	annually	ongoing – some progress
2.12	b	Use additional resources (e.g., staff, funds, and technical support) to monitor water quality in watersheds where NPS restoration activities have occurred. The monitoring data will be compared to baseline information, if available, to gauge the efficacy of the work. Progress: In FFY 2015, Silver Creek, Fish Creek, and Indian Creek (Switzerland Co) were monitored for improvements. Improvements found will be submitted to U.S. EPA as part of the SP-12 and WQ-10 reporting process.	2014	2018	annually	complete for FFY 2015
2.13		Continue the Ground water Monitoring Network (GWMN). Progress: Approximately 300 wells were monitored through the GWMN in 2015.	2013	2018	ongoing	Ongoing – complete for FFY 2015
2.14	a	Meet with IDEM-GW staff to discuss level of analysis of ground water data occurring and needed to characterize causes, sources, and magnitude of NPS in ground water. Progress: Meetings with GW staff took place on 4/3/14 and 6/5/14. We discussed the need for a statistical approach to collection of groundwater such that causes, sources, and magnitude of NPS in GW can be determined. Currently GW is collected at 300 locations each sampling season, which for the most part, change from year to year. This sampling regime will be ongoing for approximately 2-3 years until a statistical representation is reached, then it will develop into a fixed station network. At that time, IDEM will be able to determine causes, sources, and magnitude of NPS in particular geological settings of Indiana. Nitrates will be a target parameter.	2014	2014	one-time	complete
2.14	b	Gather data and develop a timeline for completing the ground water data analysis and reporting mechanism. Progress: Reports are prepared annually, completed by Aug of the year preceding the sampling. The 2015 annual Ground Water Monitoring Network (GWMN) report of 2014 round 6 sampling is in “draft” form and currently undergoing internal review. The GWMN report of round 6 will be available for	2014	2015	ongoing	ongoing – significant progress

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		public review once internal review has been completed. In addition, the Indiana Geological Survey has completed (July of 2015) a vulnerability analysis of the geologic settings of Indiana, using supplemental 106 and state money. The vulnerability analysis of Indiana's geologic settings has been integrated within the 2015 GWMN report by reference.				
2.14	c	Determine the frequency of future groundwater analyses and reporting Progress: Ground Water Section notified NPS that reports are prepared annually, completed by Aug of the year preceding the sampling. The 2015 annual Ground Water Monitoring Network (GWMN) report of 2014 round 6 sampling is in "draft" form and currently undergoing internal review. The GWMN report of round 6 will be available for public review once internal review has been completed.	2015	2015	one-time	complete

Goal 3: Develop and conduct a strategic outreach and education program						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
3.1	c	Work with partners to develop a consistent statewide message for septic system care. Progress: Met with Rural Wastewater Task Force to discuss moving forward on this objective on 3/12/15 and again on 5/14/15. This objective was delayed, due to staff turnover.	2014	2015	ongoing	ongoing-delayed
3.1	d	Publicize septic system care/repair/replacement water-quality success stories through multiple media applications. Progress: Septic Smart Week is September 21-25, 2015 and we've agreed to work with the Lake Michigan Coastal Program in promoting septic awareness during this week. NPS project managers emailed their groups to share U.S. EPA's materials related to Septic Smart Week. IDEM also sought out success stories to place on our website.	2014	2018	ongoing	ongoing – some progress
3.1	e	Support technical events (such as IEHA annual conference), to exchange information between government partners, watershed groups, and citizens. Progress: Staff attended and spoke at several technical events in FFY 2015, including the 2015	2014	2018	ongoing	ongoing – complete for FFY 2015

Goal 3: Develop and conduct a strategic outreach and education program						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		Indiana Association of Conservation District's Annual Conference, 2015 ILMS Conference, Alliance of Indiana Rural Water Spring Conference, and the 2015 MS4 Annual meeting.				
3.1	f	Assist in providing outreach on septic systems in the Lake Michigan Coastal Zone. Progress: NW IN WSS has participated in the Coastal Septic Workgroup NWIN watershed specialist attended committee meetings for this effort on 4/30/15 and 8/18/15. In addition, NPS staff have participated in Coastal States Organization conference calls in which on-site management measures have been discussed and further research into some of the questions from the coastal zone have been provided by IDEM to the LMCP.	2014	2018	ongoing	ongoing – some progress
3.1	f.i	Market on-site disposal system inspections at property transfer to lending institutions in the Coastal Zone. Progress: this topic remains of interest to the Coastal Septic Workgroup and some additional progress has been made. Lake County requires home inspections (including septic system inspections) at property transfer. In LaPorte County, a motion has gone forward to require an inspection of the on-site system by a certified IOWPA inspector before property transfer. This motion has been tabled until November.	2014	2015	ongoing	ongoing – some progress
3.1	f.iii	Promote the use of the Revolving Loan Fund for Septic upgrades and repairs. Progress: IDEM NPS continues to work with the CWSRF at the state level to leverage watershed plans and septic repairs. As the opportunity arises, the WSS promotes the use of CWSRF to leverage septic repairs.	2014	2018	annually	ongoing – complete for 2015
3.2	c	Work with partners to develop a consistent message surrounding hydromodification. Progress: Several WAPB staff attended the Wetland Program Development Plan public meeting on Oct 9, 2014 to provide input. Staff attended a Lowhead dam subcommittee meeting of Indiana's Silver Jackets on 5/21/15 to discuss this topic. The Silver Jackets have developed signage for lowhead dams, but few signs have been installed.	2016	2016	ongoing	Ongoing – some progress
3.2	d	Publicize hydromodification/stream restoration success stories through multiple media applications. Progress: No major hydromodification success stories came to light in	2014	2018	ongoing	Not applicable

Goal 3: Develop and conduct a strategic outreach and education program						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		FFY 2015.				
3.2	e	Continue outreach to the community of County Surveyors to become involved in water quality improvement through the IWLA, the Indiana Association of County Surveyors, local watershed groups, and county contacts. Progress: The IWLA recently added an Indiana County Surveyor to its steering committee to hopefully find more ways to draw Surveyors in to water quality discussions.	2014	2018	ongoing	ongoing – some progress
3.3	c	Work with partners on consistent messaging surrounding sediment and nutrients. Progress: in FFY 2015, an NPS staff person joined the Indiana Conservation Partnership’s communications subcommittee to coordinate between NPS and ICP communications. IDEM also is active in the development of the State Nutrient Reduction Strategy, which involves a public component. IDEM has had conversations with Indiana Farm Bureau’s Nutrient Management/Soil Health Partnership regarding messaging on nutrients and sediments.	2015	2015	ongoing	ongoing – some progress
3.3	d	Publicize success stories through multiple media applications. Progress: Indiana’s Little Elkhart River restoration Success Story was approved by U.S. EPA on 6/8/15 and posted to their website on 7/16/15. Because of staff turnover and limited resources, IDEM has not yet publicized the story widely.	2014	2018	ongoing	ongoing - delayed
3.3	e	Work with other ICP organizations to strategize about outreach to absentee landowners. Progress: IDEM has begun work on this topic. One of the NPS Watershed Specialists sits on the IASWCD annual conference planning committee to brainstorm topics for the IASWCD annual conference. In 2015, the IASWCD conference included a session on “Engaging Non-operating Landowners in Conservation.”	2015	2015	ongoing	ongoing – some progress
3.4		At least annually review print and electronic materials for updates and republish as needed. Progress: Web pages and other electronic resources are updated on an as-needed basis. IDEM staff reviews web materials quarterly for broken links and accuracy. 319 Solicitation and application packet information was revised for the FFY 2016 Request for proposals. The NPS program revised the following two guidance documents which are now on the web: Updating a Watershed Management Plan and Section 319 Eligible FOTG Practices.	2014	2018	annually	ongoing – some progress

Goal 3: Develop and conduct a strategic outreach and education program						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
3.5		Continue to provide citizen monitoring training through Hoosier Riverwatch and the Clean Lakes Program. Progress: In FFY 2015, Hoosier Riverwatch trained 222 persons in 25 workshops so far. Nine more workshops will take place before the end of the FFY. The Clean Lakes Program trained at least 17 people through the aquatic invasive workshops and the Secchi monitoring.	2014	2018	ongoing	ongoing – some progress
3.6	a	Produce 5 “Success Stories” (EPA WQ-10 Strategic Measure) by 2017 and publicize widely within Indiana. Progress: Indiana’s Little Elkhart River restoration Success Story was submitted to U.S. EPA on July 1, 2014. A revised version was submitted on 8/29/14. IDEM was notified of U.S. EPA approval on 6/8/15 and posted the Success Story to their website on 7/16/15. The Little Elkhart Measure W report was also submitted to U.S. EPA on 7/1/14. IDEM was notified of U.S. EPA approval on 1/13/15. Because of staff turnover and limited resources, IDEM has not yet publicized the story widely. The Indian Creek Success Story was preliminarily submitted to U.S. EPA on 7/28/15. A revised version was submitted on 8/24/2015. The Indian Creek Measure W report was submitted on 8/27/15. IDEM was notified on 8/20/15 that U.S. EPA HQ had approved the Indian Creek Success Story for 4 segments.	2014	2017	ongoing	ongoing – significant progress made
3.6	b	Publicize any awards given to watershed groups related to their water quality efforts in Indiana. Progress: Watershed groups and individuals who have received awards for their water quality efforts in Indiana are listed on pages 31-32 of the Indiana NPS Program’s FFY 2015 Annual Report. This report will be posted online.	2014	2018	ongoing	ongoing-some progress
3.7	a	Utilize social media to provide up-to-the minute information to followers of IDEM’s social media outlets. Progress: IDEM sent out a Twitter release in FFY 2014 after the annual report submission in regards to Septic Smart Awareness week (Sept 22-26, 2014). IDEM intends to do the same in FFY 2015.	2014	2018	ongoing	ongoing – some progress
3.7	b	Continue to participate in the Pathway to Water Quality at the Indiana State Fairgrounds. Progress: The IDEM SE IN WSS remains on the Pathway steering committee and attended monthly steering committee meetings in FFY 2015. Staff worked with Ball State University Immersive Learning Class students to update the exhibit. Staff participated in regular steering committee meetings as well as participating in multiple workdays to prepare the exhibit for visitors to the Indiana	2014	2018	ongoing	ongoing – some progress

Goal 3: Develop and conduct a strategic outreach and education program						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
		State Fair. Several IDEM staff (including NPS staff) volunteered to work at the exhibit during the Indiana State Fair (August 7-23, 2015).				
3.8	b	Initiate meetings with partners to discuss IDEM's goal of strategic messaging for the state on hydromodification. Progress: NPS has attended meetings of the Indiana Silver Jacket's lowhead dam subcommittee. Discussion of signage related to lowhead dams took place.	2014	2016	Ongoing	Ongoing – some progress
3.9	a	Continue to provide technical assistance to Purdue University's Indiana Watershed Leadership Academy. Progress: NPS Staff sat in on steering committee meetings on Oct. 6, 2014; Jan. 30, 2015; and June 29, 2015. NPS staff provided assistance with Purdue's Sustainable Funding Plan by suggesting potential sponsors of the IWLA, ways to make the Academy more visible, and online donations. Staff participated in reviewing 14 IWLA assignments during the 2015 program. Watershed Specialists and the Senior Watershed Planner participated in the Academy graduation and facilitated small groups to discuss moving projects forward outside of the Academy.	2014	2018	ongoing	ongoing – significant progress
3.9	b	Continue to support the ICP's Training and Certification Program on watershed related issues by sitting on the Technical Research Board and the advisory team. Progress: IDEM NPS holds a seat on the lead program team and attends bimonthly conference calls to continue to move the training program forward. The Technical Research Board (TerBo) was dissolved by the ICP TCP.	2014	2018	ongoing	ongoing – some progress

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing NPS pollutants such as nutrients, sediment, and bacteria; restoring aquatic habitats; and establishing flow regimes that mimic natural conditions						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
4.1	a	Utilize the TMDL-WMP template for TMDLs sampled for and written in 2014 and beyond so that they are implementable using 319 funds. Progress: The Southern Whitewater TMDL was written on the template and will be submitted by the end of the FFY. The South Fork Blue River is in-progress and is being written on the template.	2014	2018	ongoing	ongoing – significant progress

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing NPS pollutants such as nutrients, sediment, and bacteria; restoring aquatic habitats; and establishing flow regimes that mimic natural conditions						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/Progress Made
		Work has also begun on the Salt Creek (Monroe/Lawrence Co) and it will be written using the template. IDEM TMDL has approached U.S. EPA about improving the template so that TMDLs will be directly implementable with 319 funds.				
4.1	b	<p>Prioritize TMDLs for the next five years to give watershed groups an idea of where TMDLs will be pursued. Progress: Complete. This objective was tied into the national TMDL visioning process. To accomplish the prioritization, IDEM focused on watersheds with impaired biotic communities, but "Good" to "Excellent" habitat as determined by a QHEI completed by IDEM staff (indicated the potential presence of a pollutant as the cause of contamination). Watersheds with previously-written TMDLs or WMPs were then excluded to avoid duplication of effort. Since TMDLs are not self-implementing, watersheds without a known watershed effort with interest in the watershed in question were also eliminated. Additional criteria were then applied to the candidate list. IDEM determined whether the following priority components were present in the larger 10-digit watershed: a lake impacted by surface water; rare, threatened, and endangered species; and, source water. Finally, the candidate list was prioritized by the strength of the watershed effort, absence of compounding issues, and number of priority issues each watershed met. High priority watersheds for TMDL development are:</p> <ul style="list-style-type: none"> • Salt Creek (HUC 0512020808) • Blue River (HUC 0512010401) • Crooked Creek-White River (HUC 0512020110) • Vernon Fork-Muscatatuck River (HUC 0512020707) • Guthrie Creek (HUC 05120200802) • East Fork White River (HUC 0512020815) <p>Other watersheds were chosen as Medium or Low priority watersheds, but may take precedence over high priority watersheds in certain cases.</p>	2014	2014 2016	one-time	complete
4.1	c	Link TMDLs with baseline water monitoring projects for Section 319 watershed management planning applications. Progress: The Deep River TMDL has been	2014	2018	ongoing	ongoing – significant

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing NPS pollutants such as nutrients, sediment, and bacteria; restoring aquatic habitats; and establishing flow regimes that mimic natural conditions						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/Progress Made
		submitted and approved by U.S. EPA (approved on 9/26/14). The local Deep River watershed group is using the data and loads in their WMP. Monitoring done for the Southern Whitewater River TMDL will also be used by a local watershed group. Both watershed groups (Deep River and Southern Whitewater) are now in the watershed planning stage. Upper Mississinewa River was monitored for the TMDL and WMP. The TMDL is currently being written and the watershed is in the planning stage. South Fork Blue River is currently being monitored and is currently in the watershed planning phase. Salt Creek (Monroe Co) has been identified as the next baseline project.				progress
4.2		Develop guidance for updating watershed management plans. Progress: new guidance was developed and posted to the NPS website on 3/12/15.	2014	2016	one-time	complete
4.3		Promote integration of WMPs with local comprehensive plans. Progress: Integration of WMPs with local comprehensive plans is being promoted where and when there is opportunity. There has been some success on this to date. For example, in NW IN, relevant portions of NIRPC's 2040 plan is incorporated into all watershed management plans that have been developed since its completion in 2011 (Little Calumet – East Branch, Deep River – Portage Burns, and Salt Creek).	2014	2018	ongoing	ongoing – some progress
4.4	a	Integrate disparate NPS program databases into one centralized integrated Watershed database to assist with tracking and reporting. Develop scope of work for the integrated databases project. Progress: A scope of work for this project was developed.	2014	2015	ongoing	complete
4.5		Use Section 319 funding to support implementation of WMPs that meet the U.S. EPA'S 9 Key Elements of a Watershed Plan (including staff support and outreach as well as the placement of BMPs in critical areas as identified in the WMPs). Progress: In FFY 2015, there were thirty-seven open 319 projects exceeding \$13.5 million to implement WMPs or to create a WMP, then implement it. Seven implementation projects were chosen to receive FFY 2015 funding including Indian-Kentuck Creek, Middle Eel-Beargrass Creek, Plummer Creek, Turtle Creek-Turman Creek-Kelly Bayou, Big Creek, Lower Eel River, and Upper Tippecanoe River-Walnut Creek.	2014	2018	ongoing	ongoing – significant progress

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing NPS pollutants such as nutrients, sediment, and bacteria; restoring aquatic habitats; and establishing flow regimes that mimic natural conditions						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
4.6		Repair previously-installed BMPs with the caveats outlined in the program policy. Progress: No BMPs required repair during FFY 2015.	2014	2018	ongoing	not applicable
4.7		Continue to leverage LARE and CWI funds to address erosion, sedimentation and nutrient input concerns as long as the General Assembly continues to approve appropriations. Progress: As the opportunity arises, LARE and CWI projects are being used as match for NPS projects.	2014	2018	ongoing	ongoing – some progress
4.8		Develop guidance for the identification of critical areas. Progress: This guidance is in progress. A draft document has been produced by NPS staff; U.S. EPA disagreed with IDEM's guidance and a meeting was held Oct 2, 2014 to clarify EPA's position on critical areas. Later, a call was held with Region V on 1/23/15 to further clarify issues from the Oct 2 meeting. IDEM is working with U.S. EPA to clarify critical areas in ongoing individual watershed management plans. IDEM is waiting to hear from EPA before finalizing guidance.	2014	2014	one-time	ongoing - delayed
4.9		Show partial or total restoration in at least 5 12-digit watersheds (at least 5 SP12 and 5 WQ-10; watersheds identified may count for both measures) in the five-year cycle 2013-2017. Progress: In FFY, IDEM submitted the Little Elkhart River for its Success Story and Measure W watershed. The Little Elkhart River watershed Measure W and Success Story were approved by Region V on 1/14/15 and 6/8/15, respectively. The Little Elkhart Success Story was posted to the EPA Success Stories website on 7/16/2015. In 2015, IDEM NPS submitted the Devils Backbone of Indian Creek as a Measure W (SP-12) and a Success Story (WQ-10). U.S. EPA HQ approved the watershed as a Success Story on 8/20/15. Further discussion with U.S. EPA Region V is needed to determine whether or not the Devils Backbone of Indian Creek watershed qualifies for Measure W.	2013	2017	ongoing	ongoing – complete for FFY 2015
4.10	a	Investigate and adopt a standard method to estimate E. coli reductions. Progress: Indiana continues to struggle with this objective. Indiana has continued to ask for assistance from Region V. IDEM's understanding is that Region V is working to update the STEP-L and Region V models to include E. coli. Until further assistance is received from Region V, Indiana will likely not be able to move forward on this issue.	2014	2014 2018	one-time	ongoing - delayed

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing NPS pollutants such as nutrients, sediment, and bacteria; restoring aquatic habitats; and establishing flow regimes that mimic natural conditions						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete/Progress Made
4.10	b.	Train staff and grantees on the method	2015	2015	ongoing	pending
4.10	c.	Track implementation of E. coli reducing-practices and reductions achieved	2015	2015	ongoing	pending
4.11		Geolocate all BMPs installed through the Section 319 grant program in order to enhance the BMP GIS layer located in the NPS program. Progress: all 319-funded BMPs installed up through FFY 12 have been added to the BMP layer. IDEM's Watershed Assessment and Planning Branch continues to seek efficiencies in this geospatial exercise by exploring the addition of a GIS component as a deliverable in contracts.	2014	2018	ongoing	ongoing – significant progress
4.12		Solicit for proposals to use Section 319 funding to support implementation of WMPs that meet the U.S. EPA'S 9 Key Elements of a Watershed Plan (includes staff support as well as BMPs). Progress: FFY 2015 solicitation began 4/1/14 and closed 9/2/14. FFY 2016 solicitation began 4/15/15 and closed 9/1/15.	2014	2018	annually	complete for FFY 2015
4.12	a	Provide financial and technical support to install agricultural BMPs in critical areas identified in the plan. Progress: A list of the BMPs installed using Section 319 funding during FFY 2015 is available in Table 2 and on pages 44-48 of this report.	2014	2018	annually	ongoing – some progress
4.12	b	Provide financial and technical support to install urban and/or residential BMPs in critical areas identified in the plan. Progress: A list of the BMPs installed using Section 319 funding during FFY 2015 is available in Table 2 and on pages 44-48 of this report.	2014	2018	annually	ongoing – some progress
4.12	c	Provide financial and technical support to install forestry BMPs in critical areas identified in the plan. Progress: A list of the BMPs installed using Section 319 funding during FFY 2015 is available in Table 2 and on pages 44-48 of this report.	2014	2018	annually	ongoing – some progress
4.12	d	Provide financial and technical support to install abandoned mine BMPs in critical areas identified in the plan. Progress: A list of the BMPs installed using Section 319 funding during FFY 2015 is available in Table 2 and on pages 44-48 of this report.	2014	2018	annually	ongoing – some progress
4.12	e	Provide financial and technical support to install hydrological and aquatic habitat BMPs in critical areas identified in the plan. Progress: A list of the BMPs installed using Section 319 funding during FFY 2015 is available in Table 2 and on pages 44-48 of this report.	2014	2018	annually	ongoing – some progress

Goal 5. Protect sensitive, vulnerable, and high quality waters of the state so that they may continue to meet their designated uses.						
Obj. #	M M	Objective	FFY Start	FFY End	Frequency	Complete/ Progress Made
5.1		Encourage watershed planning activities in watersheds with Category 1 waters (including those waters identified in Table 15 and in subsequent Integrated Reports). Progress: the draft Southern Whitewater TMDL included protection priorities for both the state endangered variegate darter and the globally imperiled cobblestone tiger beetle. The finalized TMDL will be given to the watershed group to aid in the writing of their WMP and the watershed specialist will continue to provide technical assistance, encouraging them to use protection strategies in the WMP.	2015	2018	ongoing	ongoing – some progress
5.2		Identify watersheds with source water intakes. Progress: Complete. This objective was addressed during the prioritization of TMDLs.	2015	2015	one-time	complete
5.3		Participate as requested in Phase II wellhead protection planning. Progress: The IDEM NPS staff met with the IDEM Ground Water staff and discussed this topic twice this FFY. Staff turnover in the Ground Water Section has precluded forward momentum on this project during 2014 and first half of 2015. The Ground Water Section is now fully staffed (as of August, 2015), and it is anticipated that discussions will resume during late quarter of 2015.	2014	2018	ongoing	pending
5.4		Develop priorities for plans and implementation in watersheds that impact Outstanding State Resource Waters (OSRWs) and waters important for aquatic habitat. Progress: In 2015, IDEM prioritized work in 365 watersheds impacting aquatic communities for FFY 2016 funding, including 12-digits in the following Goal 5 priority watersheds: Indiana Dunes National Lakeshore, Wildcat Creek, Lost River, Fawn River, St. Joseph (MI), Fish Creek, Cedar Creek, Hayes Branch- Laughery Creek, Anderson River, Lead Creek-Ohio River, Pup Creek-Ohio River, Barren Fork-Little Pigeon, Eagle Creek, Plummer Creek, Duck Creek-Big Blue River, Sugar Creek, Sand Creek, Graham Creek, Otter Creek, Brush Creek-Vernon Fork Muscatatuck, Otter Creek, Vernon Fork Muscatatuck River, Salt Creek, Leatherwood Creek-East Fork White River, Barn Run, East Fork White River, Little Pipe Creek, Salamonie River, Blue River-Eel River, Weesau Creek, Eel River, Deer Creek, Sugar Creek-Wabash River, Grassy Creek-Tippecanoe River, Eddy Creek-Tippecanoe, Bruce Lake Outlet, Indian Creek, Dickey Creek, Honey Creek, Tippecanoe River, South Fork Wildcat, Wildcat Creek, Big Pine, Kickapoo Creek, Browns Wonder-	2015	2018	annually	complete for FFY 2015

		Sugar Creek, River Deshee-Wabash River, Coffee Bayou-Wabash River, Headwaters Yellow River, Mill Creek-Kankakee, Crooked Creek-Kankakee River, Martindale Creek-Whitewater, Hunley Creek, Altar Creek, Stone Co-Patoka, and South Fork Patoka River.				
5.5		Fund 319-eligible protection strategies identified in critical areas of IDEM-approved 9-Elements watershed management plans proposed by Section 319 grant applicants whose implementation applications rank high enough for funding. Progress: no protection strategies were funded in 2015.	2015	2018	annually	not applicable
5.6		Work with IDEM's Ground Water section and watershed groups, as well as CWSRF and Drinking Water SRF, to identify wells in need of proper decommission. Progress: Staff turnover has delayed this objective for FFY 2015.	2015	2018	ongoing	ongoing-delayed

Appendix B

Open 319 Projects 9/1/14 - 8/31/15

FFY	ARN	Contractor	Project	Status	Start	End	Type
2009							
	2-6	Wabash River Enhancement Corp.	Region of the Great Bend of Wabash WMP Impl	Closed	2/14/2012	2/13/2015	Restoration/Impl
	2-7	Bartholomew County SWCD	Flatrock-Haw WMP Implementation	Closed	1/3/2012	1/2/2015	Restoration/Impl
2010							
	10-80	Clark County SWCD	Silver Creek Watershed Improvement Project	Closed	10/18/2010	10/17/2014	Restoration/Impl
	10-81	Jasper County SWCD	Task E - Upper Iroquois Watershed Initiative	Closed	11/8/2010	11/7/2014	Planning
	10-85	Dearborn County SWCD	Hogan Creek Watershed Project	Closed	11/16/2010	11/15/2014	Restoration/Impl
	10-86	LaGrange County SWCD	Pigeon River WMP Development & Implementation	Closed	9/28/2010	9/27/2014	Combo
	1-2	Sullivan County SWCD	Busseron Creek Watershed Implementation	Closed	11/24/2010	11/23/2014	Restoration/Impl
	1-66	Indiana State Department of	Technical Assistance for Agriculture	Closed	7/15/2011	1/17/2015	ProgramSupport
	2-72	Purdue University	Watershed Leadership Academy Con't	Closed	2/1/2013	1/31/2015	ProgramSupport
	2-73	Tippecanoe Watershed Foundation	Upper Tippecanoe River-Grassy Creek Implementation	Closed	10/22/2012	1/31/2015	Restoration/Impl
2011							
	2-11	Save the Dunes Conservation Fund	Little Calumet River East Branch WMP	Open	1/17/2012	7/16/2015	Planning
	2-15	Upper White River Watershed	Partners & Projects Protecting the White Implemen	Closed	1/30/2012	1/29/2015	Restoration/Impl
	2-16	St. Joseph River Watershed Initiative	Upper St. Joe Watershed Project	Open	2/14/2012	1/31/2016	Combo
	2-21	Allen County SWCD	Upper Maumee WMP & Implementation	Open	2/14/2012	1/31/2016	Combo
	2-22	Carroll County SWCD	Deer Creek-Sugar Creek WMP & Implementation	Open	4/13/2012	1/31/2016	Combo
	2-25	Indiana University	Indiana Clean Lakes Program	Open	1/5/2012	1/4/2016	Assessment
	2-8	The Nature Conservancy	Two-Stage Ditch Implementation	Closed	1/17/2012	1/15/2015	Restoration/Impl
	3-60	Historic Hoosier Hills	Indian Creek Watershed Project	Open	5/14/2013	1/31/2016	Restoration/Impl
2012							
	3-119	Dearborn County SWCD	Whitewater River WMP	Open	12/9/2013	3/8/2016	Planning
	3-18	Clinton County SWCD	South Fork Wildcat Creek Stewardship Initiative	Open	12/21/2012	12/20/2015	Restoration/Impl
	3-31	Alliance of Indiana Rural Water	Middle Patoka River Implementation	Open	1/18/2013	1/17/2016	Restoration/Impl

3-4	Manchester University	Middle Eel Watershed Initiative Implementation	Open	1/3/2013	1/2/2016	Restoration/Impl
3-47	LaPorte County SWCD	Trail Creek Cost-Share Program	Open	2/12/2013	2/11/2016	Restoration/Impl
3-77	Sullivan County SWCD	Turtle Creek-Turman Creek-Kelly Bayou WMP	Open	8/23/2013	1/31/2017	Combo
3-8	Steuben County SWCD	Pigeon Creek WMP Revision and Implementation	Open	1/17/2013	1/16/2016	Combo
3-9	Huntington County SWCD	Lower Salamonie River WMP and Implementation	Open	1/18/2013	1/17/2017	Combo

2013

3-118	Clark County SWCD	Fourteen Mile Creek/Goose Creek-OH River Watershed	Open	10/30/2013	1/29/2016	Planning
3-120	Washington County SWCD	Mill Creek-Blue River Watershed Implementation	Open	10/10/2013	11/9/2016	Restoration/Impl
3-122	Jay County Commissioners	Upper Salamonie WMP	Open	11/19/2013	11/18/2015	Planning
3-125	Northwestern Indiana Regional	Deep River-Portage Burns Waterway Watershed Initia	Open	1/1/2014	12/31/2017	Combo
4-159	Gibson County SWCD	Lower Patoka Implementation	Open	12/9/2013	3/8/2017	Restoration/Impl
4-162	Orange County SWCD	Lost River Watershed Implementation	Open	12/19/2013	12/18/2016	Restoration/Impl
4-163	Wabash River Enhancement Corp.	Region of the Great Bend of the Wabash River Impl.	Open	12/9/2013	12/8/2016	Restoration/Impl
5-9	Marshall County SWCD	Headwaters Yellow River WMP	Open	1/1/2015	12/31/2017	Planning

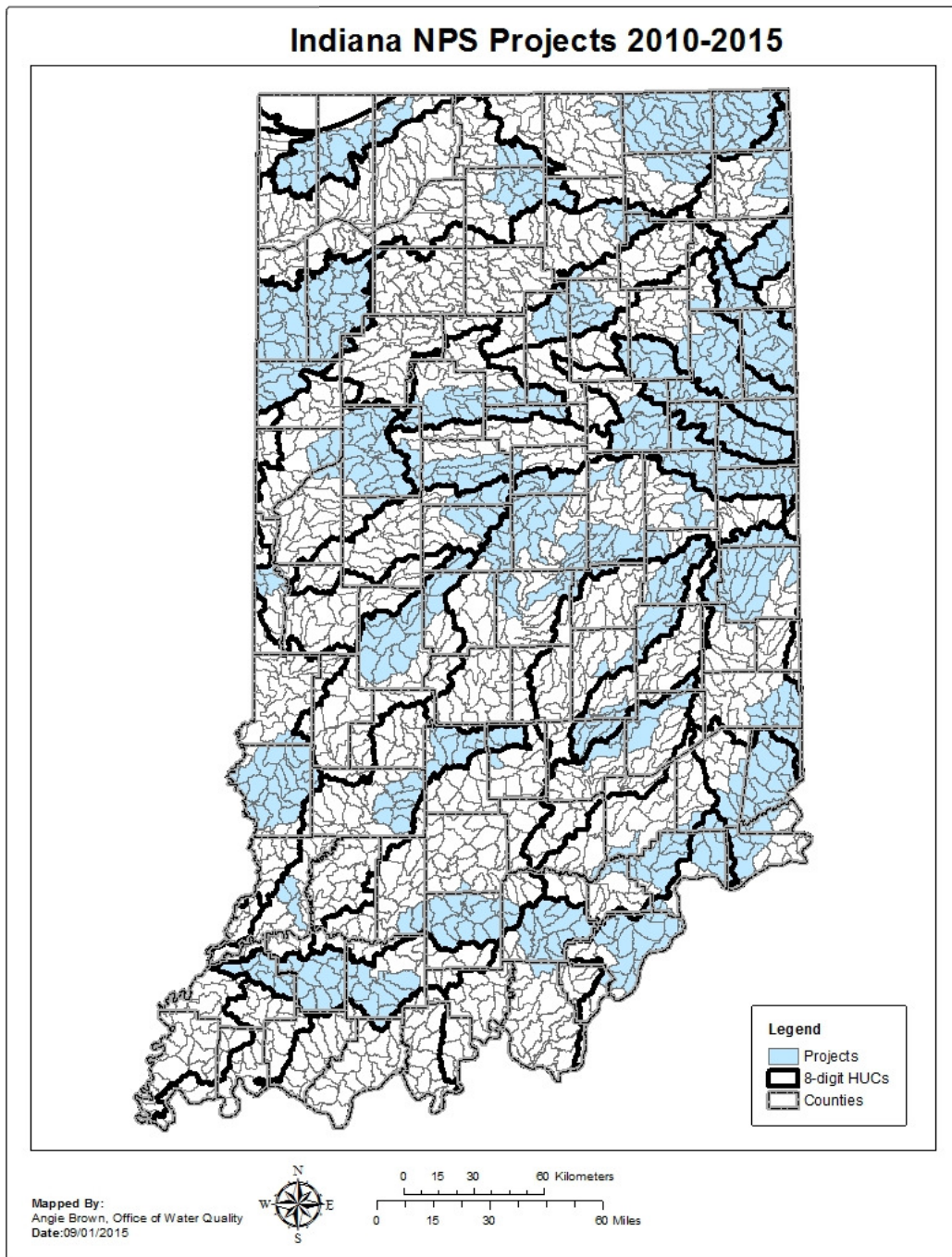
2014

4-212	EcoLogik, Inc.	Hoosier Riverwatch Database Upgrades	Open	7/28/2014	1/27/2016	ProgramSupport
4-215	Jasper County SWCD	Upper Iroquios Implementation	Open	11/8/2014	11/7/2018	Restoration/Impl
4-216	Indiana University	Indiana Clean Lakes Program	Open	3/1/2015	1/31/2019	Assessment
5-10	Upper Wabash River Basin	Upper Wabash River Implementation	Open	1/15/2015	1/14/2018	Restoration/Impl
5-194	Purdue University	IWLA 2015	Open	2/1/2015	10/31/2015	ProgramSupport
5-3	Dearborn County SWCD	Hogan Creek Implementation	Open	11/16/2014	2/15/2018	Restoration/Impl
5-5	Wayne County SWCD	Whitewater River Initiative	Open	10/2/2014	10/1/2017	Restoration/Impl
5-6	Historic Hoosier Hills	Central Muscatatuck Implementation	Open	9/24/2014	9/23/2017	Restoration/Impl
6-9	Allen County SWCD	P-Risk Reduction Pilot Upper Maumee	Pending			Restoration/Impl

2015

6-1	Historic Hoosier Hills	Indian-Kentuck Implementation	Pending			Restoration/Impl
6-4	Manchester University	Middle Eel-Beargrass Creek Implementation	Pending			Restoration/Impl
6-5	U. S. Geological Survey	School Branch NWQI study	Pending			Assessment
6-7	Tippecanoe Watershed Foundation	Upper Tippi-Walnut Creek WMP	Pending			Planning
6-8	Posey County	Big Creek WMP Implementation	Pending			Restoration/Impl
N-01	Indiana Association of Soil and	Pathway to Water Quality	Pending			Education
N-05	Greene County SWCD	Plummer Creek Implementation	Pending			Restoration/Impl
N-06	Sullivan County SWCD	TTK Implementation	Pending			Restoration/Impl
N-09	Clay County SWCD	Lower Eel WMP Implementation	Pending			Restoration/Impl

Appendix C



Map Projection: UTM Zone 16 N; Datum: NAD83. Data obtained from the State of Indiana Geographical Information Office Library and the IDEM's Nonpoint Source Program. This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Appendix D

Project Summaries for Closed Section 319 Projects

FFY 2009

Region of the Great bend of the Wabash River WMP Implementation (2-6) – The Wabash River Enhancement Corporation (WREC) developed, promoted and implemented a cost-share program for BMPs that addressed the water quality concerns outlined in the Region of the Great Bend of the Wabash River Watershed Management Plan (WMP). WREC conducted a monitoring program at the two existing stations on the Wabash River during years two and three of the project to determine loadings and changes in load across the project's reach. They also monitored the paired watersheds within the established locations to develop a statistically significant relationship that demonstrates change in water quality. In addition, WREC will implemented a comprehensive education and outreach program designed to bring about behavioral changes and encourage BMP implementation that will lead to reduced nonpoint source pollution in the watershed. They maintained the project's website as part of www.wabashriver.net and updated the website regularly.

Flatrock-Haw WMP Implementation (A305-2-7) – The Bartholomew County SWCD implemented the Flatrock-Haw Creek Watershed Management Plan by developing, promoting and implementing a cost-share program for BMPs that addressed the water quality concerns outlined in the WMP. The District conducted a monitoring program to enhance baseline data, conduct trend analysis, and increase community involvement and public awareness about the project and water monitoring. The District also conducted an education and outreach program designed to bring about behavioral changes and encourage BMP implementation that will lead to reduced nonpoint source pollution in the watershed. The program included newsletters, news releases to local media, brochures, and field days or workshops.

FFY 2010

Silver Creek Watershed Improvement Project (EDS# A305-10-80) - The Clark County SWCD implemented the Silver Creek Watershed Management Plan by conducting a cost-share program to implement BMPs in the watershed that address the water quality concerns outlined in the WMP. The District installed livestock exclusion fencing, an alternative watering system, and a rain garden as demonstration projects to educate the public on improving water quality through BMPs. The District also conducted a monitoring program for trend analysis. An education and outreach program designed to bring about behavioral changes and encourage BMP implementation in the watershed was conducted including a brochure on proper septic system maintenance, news releases to the local media, newsletters to watershed stakeholders addressing nonpoint source pollution and its impact on water quality, a fertilizer and pesticide brochure, a nonpoint source website, and field days or workshops to promote the BMPs at the demonstration sites.

Hogan Creek Watershed Project (EDS# A305-10-85) - The Dearborn County SWCD implemented the Hogan Creek Watershed Management Plan by conducting a cost-share program to implement BMPs that address the water quality concerns outlined in the Hogan Creek WMP. The District also conducted

an education and outreach program designed to bring about behavioral changes and encourage BMP implementation in the watershed including field days or workshops; pamphlets, newsletters, press releases and fact sheets which promote cost share programs; field days and watershed events; classroom presentations to educate primary school students about the importance of preventing nonpoint source pollution and the benefits of improving water quality in the watershed; a teacher's workshop; and a septic system management workshop to educate homeowners on the importance of septic system care.

Pigeon River WMP Development and Implementation (EDS# A305-10-86) - The LaGrange County SWCD produced a WMP for the Pigeon River watershed, Hydrologic Unit Codes (HUC) 040500011008, 040500011009, 040500011010, 040500011101, 040500011102, 040500011103, 040500011104, 040500011105, 040500011106, and 040500011107. A steering committee of local stakeholders was formed to guide the development of the WMP. Once the WMP was complete, a cost-share program was conducted to BMPs that address the water quality concerns outlined in the Pigeon River WMP. The District conducted a monitoring program to establish a baseline of water quality and help isolate problematic locations for BMP installation. An education and outreach program designed to bring about behavioral changes that lead to reduced nonpoint source pollution in the watershed was also conducted and included: a field day and a workshop to educate the public on water quality testing and land use problems and solutions; a brochure educating stakeholders about the watershed and WMP development and implementation; a brochure educating stakeholders about water quality issues and the cost-share program, annual media releases; and meeting with Amish Bishops on a quarterly basis to provide progress on WMP development and BMP implementation. The Pigeon River WMP may be found on IDEM's website at <http://www.in.gov/idem/nps/3933.htm>.

Busseron Creek Watershed Implementation (EDS# A305-1-2) – The Sullivan County SWCD implemented the Busseron Creek Watershed Management Plan by conducting a cost-share program to implement BMPs that address the water quality concerns outlined in the Busseron Creek WMP. The District conducted a monitoring program to detect changes in water quality as well as to further refine critical areas to effectively implement BMPs, and to identify trends in pollutant loads. An education and outreach program designed to bring about behavioral changes and encourage BMP implementation was conducted including: updating the current Busseron Creek Watershed website; distributing an electronic newsletter about the watershed and nonpoint source pollution at least quarterly; submitting media releases to inform stakeholders about meetings and updates; conducting a septic workshop; conducting a workshop on rain gardens, lakeside landscaping, or other urban BMPs; and hosting a field day to showcase a BMP.

Technical Assistance for Agriculture (EDS# 1-66)

The Indiana State Department of Agriculture (ISDA) trained three individuals (Technicians) that provided technical assistance for the implementation of BMPs and conservation practices that reduced sediment, nutrients, and *E.coli* in the Tippecanoe, Upper Eel and Upper Wabash watersheds (Hydrologic Unit Codes 05120106, 05120104, and 05120101).

Watershed Leadership Academy Continued (EDS# 2-72)

Purdue University continued to build on the success and broad partnerships of the Indiana Watershed Leadership Academy (IWLA) and sustained and updated its efforts to serve the watershed and nonpoint source training needs of community-based water quality efforts. Purdue recruited watershed leaders from diverse backgrounds and conduct the IWLA course two times in 2013 and 2014. Purdue developed

a detailed plan for sustainable funding for the Academy and submitted a copy of the plan with the project final report. Purdue will also strengthen the watershed community in Indiana, including continuing the monthly series of webinars on topics of relevance to watershed managers.

Upper Tippecanoe River-Grassy Creek Implementation (EDS# 2-73)

The Tippecanoe Watershed Foundation (TWF) developed and promoted a cost-share program to implement BMPs that address the water quality concerns outlined in the Upper Tippecanoe Watershed Management Plan. They conducted a monitoring program to continue trend analysis, demonstrate water quality improvements, and detect water quality problems in the watershed. The TWF also conducted an education and outreach program designed to bring about behavioral changes and encourage BMP implementation that will lead to reduced nonpoint source pollution in the watershed including promoting the Clear Choices Clean Water campaign (www.clearchoicescleanwater.org), distributing monthly e-newsletters to watershed stakeholders, conducting field days/tours to highlight BMPs and cost-share projects, conducting educational workshops and water festivals to inform and empower residents to change behavior for the benefit of clean lakes and streams, placing signs at water quality improvement project sites, and updating the TWF website (www.tippecanoewatershed.org). TWF developed and distributed one post-implementation survey throughout the watershed to understand the awareness, attitudes, capacity, and behaviors of residents of the watershed and the amount of change. The survey was used to develop descriptive statistics of the target audience to inform planning and future implementation efforts.

Demonstration Projects in the Upper Iroquois Watershed (EDS# 10-81)

The Jasper County SWCD developed a watershed management plan for the Upper Iroquois watershed using 205j funds. As part of that project, 319 funds were used to implement 3 demonstration projects. One agricultural BMP (a native prairie riparian seeding alongside a two-stage ditch) and two urban BMPs (2 vegetated bio swales) were completed as demonstration projects to educate the public on improving water quality through BMPs. More information on the project may be found on their website at <http://www.iroquoiswatershed.com/>.

FFY 2011

Little Calumet River East Branch WMP (EDS#A305-2-11) – Save the Dunes Conservation Fund developed a watershed management plan Little Calumet River East Branch watershed, Hydrologic Unit Code (HUC) 0404000104, conducted water quality monitoring to establish baseline data and identify potential contributing areas, and participated in education and outreach efforts for the Little Calumet River East Branch watershed.

Partners & Projects Protecting the White River Implementation Project (EDS#A305-2-15) – The Upper White River Watershed Alliance developed, promoted, and implemented a cost-share program for BMPs that address the water quality concerns outlined in the Lower Fall Creek, Cool Creek, Stony Creek, Morse Reservoir/Cicero Creek, and Geist Reservoir/Upper Fall Creek watershed management plans. The Alliance also conducted an education and outreach program designed to bring about behavioral changes and encourage BMP implementation that will lead to reduced nonpoint source pollution in the watershed including giving presentations, distributing a cost-share program brochure, and assisting the Indianapolis Museum of Art with the implementation of the FLOW project to enhance public education and awareness of the Upper White River watershed.

Two-Stage Ditch Implementation (EDS#A305-2-8) – The Nature Conservancy promoted the two-stage ditch as a best management practice to improve water quality and instream habitat, and constructed eight segments of two-stage ditch throughout the state to increase accessibility to the practice. TNC conducted an education and outreach program to encourage two-stage ditch implementation, including implementing two-stage ditches in areas of the state where the practice would be most applicable, conducting workshops and field days at two-stage ditches, submitting press releases to the media highlighting the two-stage ditch construction projects and field days, and updating the website at (<http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/indiana/placesweprotect/two-stage-ditches-the-wabash.xml>) regularly with information on two-stage ditches and locations where sites have been constructed.

Programmatic Section 319 Grant Conditions Met

- √ Progress reports and the Final Report entered in GRTS for all projects
- √ All mandated elements entered in GRTS for all projects
- √ QAPPs completed and approved prior to reimbursement for all projects collecting data
- All water quality monitoring data collected will be entered into STORET. Progress on this condition may be found in Appendix A, Goal 2, Objective 2.3

Appendix E

Open 205(j) Projects 9/1/14 - 8/31/15

FFY	ARN	Contractor	Project	Status	Start	End	Type
2010							
	10-81	Jasper County SWCD	Upper Iroquois Watershed Initiative	Closed	11/8/2010	11/7/2014	Planning
2011							
	2-2	Ohio River Valley Water Sanitation	Lower Wabash River Nutrients Monitoring	Closed	1/20/2012	1/19/2015	Assessment
2012							
	3-3	LaGrange County SWCD	Fawn River WMP	Open	1/18/2013	7/17/2015	Planning
	3-5	Upper Wabash River Basin Commission	Upper Wabash River WMP	Open	1/9/2013	4/8/2015	Planning
2013							
	4-179	Delaware Co. SWCD	Mississinewa River WMP	Open	1/30/2014	7/29/2016	Planning
	5-188	Georgia College and State University	Diatom Identification and Enumeration	Open	10/29/2014	4/28/2016	ProgramSupport
	5-189	enfoTech and Consulting, Inc.	AIMS II Expansion, Enhancements and	Open	8/11/2015	8/10/2017	ProgramSupport
2014							
	4-213	enfoTech and Consulting, Inc.	AIMS II Enhancements & Maintenance	Closed	8/11/2014	8/10/2015	ProgramSupport
	5-1	Clinton County SWCD	Browns Wonder-Sugar Creek Watershed	Open	9/2/2014	9/1/2016	Planning
	5-180	Washington County SWCD	S.F. Blue River Watershed Project	Open	11/7/2014	3/6/2017	Planning
2015							
	5-240	U. S. Geological Survey	Kankakee Continuous Water Quality Monitoring	Pending			Assessment
	6-3	Kosciusko County SWCD	Upper Middle Eel River WMP	Pending			Planning